BLM

United States Department of the Interior
Bureau of Land Management

Environmental Assessment
for the December 2020 Competitive Oil & Gas Lease Sale

Royal Gorge Field Office
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Contents

Chapter 1 - Introduction

1.1 Identifying Information

Background:

It is the policy of the Bureau of Land Management (BLM) as derived from various laws, including the Mineral Leasing Act of 1920 (MLA) and the Federal Land Policy and Management Act of 1976 (FLPMA), to make mineral resources available for disposal and to encourage the development of mineral resources to meet national, regional, and local needs.

The BLM Colorado State Office conducts quarterly competitive sales to lease available oil and gas parcels. A Notice of Competitive Lease Sale (Sale Notice), which lists lease parcels to be offered at the auction, is published by the Colorado State Office at least 60 days before the auction is held. Lease stipulations applicable to each parcel are specified in the Sale Notice. The decision as to which public lands and minerals are open for leasing and what leasing stipulations may be necessary, based on information available at the time, is made during the land use planning process.

In the process of preparing a lease sale, the Colorado State Office sends a draft parcel list to each field office where the parcels are located. Field office staff then review the legal descriptions of the parcels to determine if they are in areas open to leasing and that appropriate stipulations have been included; verify whether any new information has become available that might require additional analysis in addition to what was conducted during the planning process; confirm that appropriate consultations have been conducted; and identify any special resource conditions of which potential bidders should be made aware. The proposed parcels are posted online for a 15-day public scoping period. BLM prepares appropriate National Environmental Policy Act (NEPA) documentation. Comments received from the public during scoping and any comment period are reviewed and incorporated into the NEPA document, as applicable.

After the field office completes the preliminary parcel review and any additional NEPA analysis, and makes a leasing recommendation to the state office, a list of proposed lease parcels and associated stipulations is made available to the public through a Sale Notice, which is posted on the Colorado BLM website at:

https://www.blm.gov/programs/energy-and-minerals/oil-and-gas/leasing/regional-lease-sales/colorado

On occasion, BLM may defer or withhold additional parcels prior to the day of the lease sale. In such cases, BLM prepares an addendum to the Sale Notice. Prior to the lease sale, the Deputy

State Director signs a decision in which he or she determines which parcels are available and will be offered for lease in the upcoming sale.

Parcels offered but not leased at the December 2020 lease sale will remain available to be leased for a period of up to two years to any qualified lessee at the minimum bid cost. Parcels obtained in this way may be re-parceled by combining or deleting other previously offered lands. Mineral estate not leased within two years of an initial offering will remain unavailable without undergoing a new competitive lease sale process again prior to being leased.

The act of leasing does not authorize any development or use of the surface of lease lands without further application by the lessee and approval by BLM. In the future, BLM may receive Applications for Permit to Drill (APD) for those parcels that are leased. If APDs are received, BLM conducts additional site-specific NEPA analysis before deciding whether to approve the APD, and what conditions of approval (COAs) should apply.

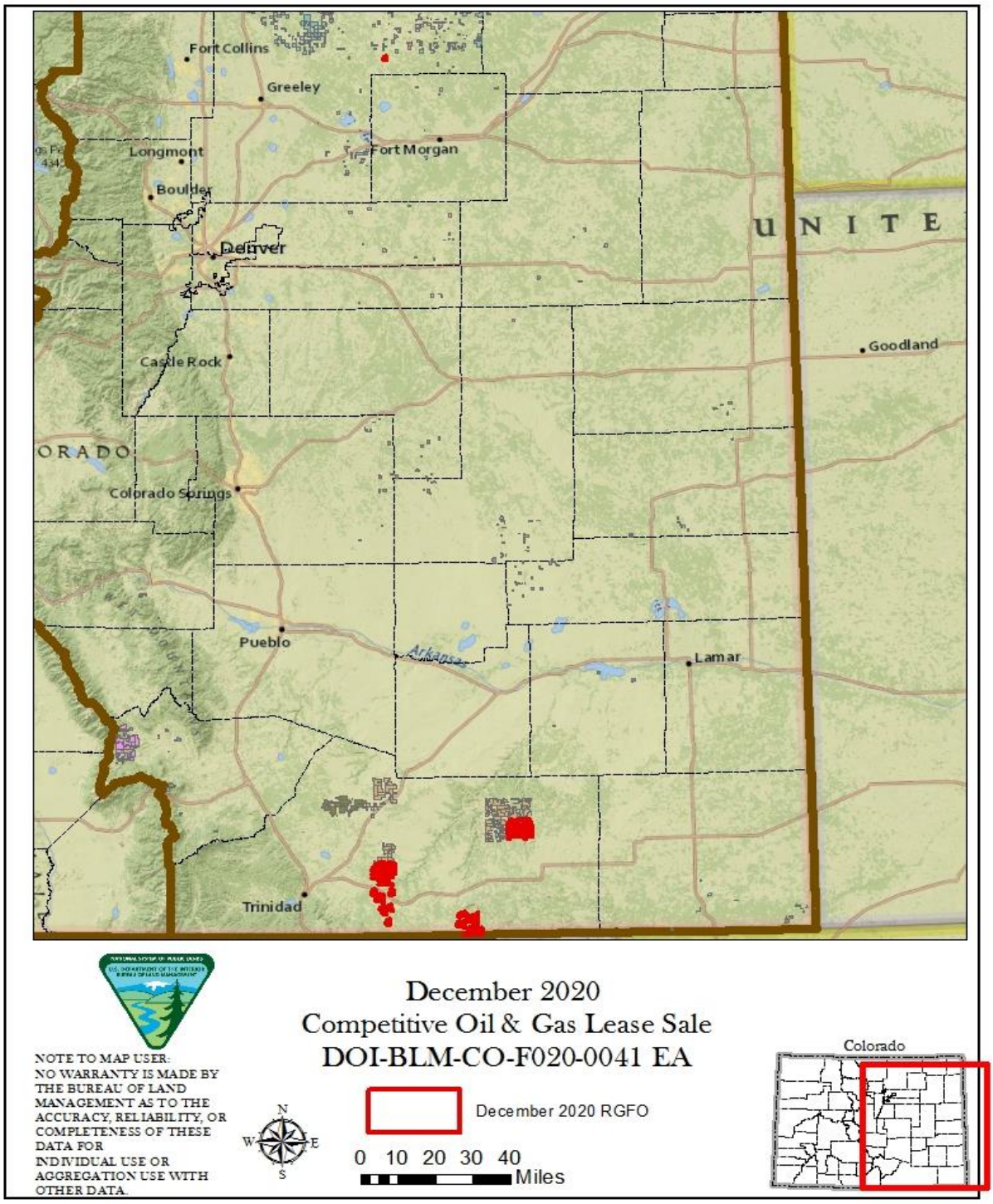
Twenty-five parcels comprising 33,977.730 acres of split estate land within the Royal Gorge Field Office (RGFO) were proposed for consideration for the December 2020 Competitive Oil and Gas Lease Sale. The legal descriptions of the proposed parcels are listed in Attachment A.

This Environmental Assessment (EA) documents the review of the proposed parcels under the administration of the Royal Gorge Field Office. It serves to verify conformance with the approved land use plan and provides the rationale for the field office's recommendation to offer or to defer particular parcels from a lease sale.

This EA was released for 30 days of public comment from August 14, 2020 to September 14, 2020. All comments have been considered and incorporated into the EA as appropriate.

1.2 Project Location and Legal Description

Please see Attachments A, B, and C, and Maps in Attachment E.



1.3 Purpose and Need

The purpose of the action is to consider opportunities for private individuals or companies to explore and develop federal oil and gas resources on specific split-estate parcels through a competitive leasing process.

The need for the action is to consider parcels for possible leasing, consistent with BLM's responsibility under the MLA, as amended, to promote the development of oil and gas on the public domain. Parcels may be identified for consideration by the public, BLM or other agencies. The MLA establishes that deposits of oil and gas owned by the United States are subject to disposition in the form and manner provided by the MLA under the rules and regulations prescribed by the Secretary of the Interior, where consistent with FLPMA and other applicable laws, regulations, and policies.

1.3.1 Decision to be Made

BLM will decide whether to lease all, some, or none of the proposed parcels at the December 2020 lease sale. The BLM also will decide what stipulations should be attached to the parcels, and whether the stipulations should be applied to all lands in the parcels or to specific aliquots (portions).

1.4 Public Participation

1.4.1 Scoping

The principal goal of scoping is to identify issues, potential impacts, and potential alternatives that require detailed analysis. The BLM uses both internal and external scoping to identify potentially affected resources and associated issues.

Internal scoping was conducted through meetings of an interdisciplinary (ID) team of resource specialists and discussion of the proposed parcels.

An external scoping process gave the public an opportunity to provide comments on the Proposed Action. External scoping was conducted by posting the proposed lease parcels and their respective stipulations from the Northeast and Royal Gorge Resource Management Plans (RMPs) for 15 days from June 30, 2020 to July 14, 2020. Stipulation summaries, GIS shapefiles, and maps were posted on the BLM Colorado State Office website: https://www.blm.gov/programs/energy-and-minerals/oil-and-gas/leasing/regional-lease-sales/colorado

BLM sent letters to surface owners whose land overlies federal minerals proposed for leasing. The BLM also sent notification letters with parcel listings, parcel maps, and (if requested) GIS shapefiles to representatives of selected federal agencies, tribal, state, county, and local governments. Chapter 4 of the EA lists the organizations receiving notification letters.

BLM received eleven comment submissions during the scoping period, two of which were form letters (679 identical letters). The scoping comments were considered during development of this EA.

1.4.2 Issues Identified and Analyzed in the EA

Scoping comments expressed concerns related to sensitive aquatic species, wildlife, economics, policy and procedure air and water. The external scoping comments were useful in drafting the EA, and some issues raised in comments were carried forward for analysis. Some site-specific issues are more properly addressed in subsequent NEPA analysis if and when development on the potential leased areas is proposed. The following issues identified during internal and external scoping are analyzed in this EA.

Program Area	Issue Statement	Brought forward for additional analysis	Resource Specialist and Date
Air Resources	What impacts on air resources could result from leasing, and any potential future air pollutant emissions associated with projected oil and gas development?	X	CMeister 8/5/2020
T&E, Sensitive Species	What impacts will leasing and development have on special status species and/or their habitat and Potential Conservation Areas (PCAs)?	X	MRustand 7/17/2020
Wildlife Terrestrial	What impacts will leasing have on big game and raptor nesting?	X	MRustand 7/17/2020
Migratory Birds	What impacts will leasing have on migratory bird nesting and habitat?	X	MRustand 7/17/2020
Social and Economic Conditions	What impacts will leasing and potential development have on local social and economic conditions?	X	AStillings 7/22/2020
Environmental Justice	Are there environmental justice populations that may be disproportionately adversely affected?	X	AStillings 7/22/2020

1.4.3 Public Comment Period

The EA and the unsigned Finding of No Significant Impact (FONSI) for the December 2020 Oil and Gas Lease Sale were available for a thirty-day public review and comment period beginning August 14, 2020 and ending September 14, 2020. The document was available online at *https://www.blm.gov/programs/energy-and-minerals/oil-and-gas/leasing/regional-lease-sales/colorado* and by request at the Royal Gorge Field Office. Comments received from the public have been reviewed and incorporated into the EA as appropriate.

The BLM received ten letters containing comments on the EA. Summaries of the comments, with BLM's responses, are included in Attachment F.

1.4.4 Potential Issues Considered but Dismissed from Detailed Analysis

After review of available information, including information in the RMP EISs, the interdisciplinary team determined that the following issues did not have the potential to be significantly impacted by any of the alternatives, present significant impacts beyond those considered in the RMP EISs, or were not necessary to make a reasoned choice between alternatives, and therefore did not need further analysis:

Program Area	Issue Statement	Further Analysis Determined Unnecessary	No Issue	Reason No further analysis needed	Resource Specialist and Date
Geology/ Minerals	How will mineral resources be protected including surface and down hole oil and gas that are not targeted for production?	X		Mineral resources are evaluated at the APD stage when the BLM considers impacts of specific drilling proposals on fluid and solid minerals.	Jpike 7/30/2020
Soils	What will be the impacts of leasing and development on soils?	X		At the APD stage, review of site-specific information will allow assessment of potential impacts to soil. State stormwater regulations will apply at the APD stage, and applicable BMPs will be required.	Ssales 6/20/2020
Water Quality, Surface and	How will leasing and development affect	X		At the APD stage, the BLM will review site specific	Jpike 7/30/2020

Program Area	Issue Statement	Further Analysis Determined Unnecessary	No Issue	Reason No further analysis needed	Resource Specialist and Date
Ground	surface and groundwater quality?			engineering and geology information and will require proper cementing and casing of wells to protect usable groundwater, per BLM Onshore Order #2. BMPs and state stormwater regulations will be followed to protect surface water quality.	
Invasive Plants	Will leasing and development cause the establishment and spread of weeds?	X		At the APD stage, the BLM will review site-specific vegetation conditions and will require the operator to implement BMPs to prevent weeds and control them if present on site.	A Richter 7/16/2020
Vegetation	What impacts will leasing, and development have on vegetation?	X		At the APD stage, the BLM will review site-specific vegetation conditions and will require reclamation, including successful revegetation, as appropriate.	Arichter 7/16/2020
Cultural Resources	Will the undertaking directly, indirectly, or cumulatively, and adversely, affect any historic properties present in the area of potential effects?		X	The BLM conducted a literature review of records in the BLM-RGFO field office and database and reviewed relevant information in the Compass database maintained by the Colorado Office of Archaeology and Historic Preservation (see report CR-RG- 20-076 L). No known historic properties of regional interest were identified on the proposed lease parcels.	MMW, 7/7/20
Native	Will the undertaking			Consultation with the	MMW,

Program Area	Issue Statement	Further Analysis Determined Unnecessary	No Issue	Reason No further analysis needed	Resource Specialist and Date
American Cultural Interests	affect historic properties with traditional and religious significance to tribes?			following potentially interested Native American tribes regarding the proposed lease sale is in progress: Apache Tribe of Oklahoma, Cheyenne and Arapaho Tribes of Oklahoma, Cheyenne River Lakota Tribe, Comanche Tribe of Oklahoma, Crow Creek Sioux, Kiowa Tribe of Oklahoma, Northern Arapaho Tribe, Northern Cheyenne Tribe, Northern Ute Tribe, Oglala Lakota Tribe, Pawnee Tribe, Rosebud Sioux Tribe, Shoshone Tribe, Southern Ute Tribe, Standing Rock Sioux Tribe, and the Ute Mountain Ute Tribe.	7/7/20
Paleontology	How will the paleontological resources present in the lease areas be protected?	X		Paleontological resources will be evaluated at the APD stage based on site-specific information about proposed disturbance, and requirements for the management of those resources will be applied as necessary.	MSmeins, 7/29/2020
Visual Resources	What effect will the lease sale and potential development have on visual resources?	X		Parcels located in eastern Las Animas County are within an area of higher sensitivity for change. The BLM will review site-specific information about proposed development activities at the APD stage and will require or recommend BMP's as applicable, depending on	LSkinner 8/3/2020

Program Area	Issue Statement	Further Analysis Determined Unnecessary	No Issue	Reason No further analysis needed	Resource Specialist and Date
				surface land ownership.	
Wastes. Hazardous or Solid	How will the storage and disposal of wastes (solid or hazardous) be addressed?	X		At the APD stage, the BLM will review project-specific information about proposed use, storage and disposal of wastes, and require appropriate BMPs. The BLM requires operators to comply with applicable state laws regarding solid and hazardous waste.	MSmeins, 7/29/2020
Recreation			X	Recreation is a major economic sector in Colorado. However, all of the proposed parcels for leasing are split estate, which means that the BLM does not manage the surface lands. The surface owner manages how the land is used (e.g., grazing, recreation).	LSkinner 7/30/2020 AStillings 7/30/2020
Farmlands, Prime and Unique	What impacts will leasing, and potential development have on prime and unique farmland?	X		At the APD stage, site specific review of proposed disturbance activities will be conducted. BMPs may be required at the APD stage, as applicable.	Arichter 7/16/2020
Lands and Realty			X	No federal surface	SSales 6/8/2020
WSAs, ACEC, Wild & Scenic Rivers			X	The resource is not present in the proposed lease area due to the absence of federal surface lands.	LSkinner 7/30/2020
Wilderness Characteristics			X	The resource is not present in the proposed lease area due to the absence of federal surface lands.	L Skinner 7/30/2020

Program Area	Issue Statement	Further Analysis Determined Unnecessary	No Issue	Reason No further analysis needed	Resource Specialist and Date
Forest Management			X	No federal surface	SSales 6/8/2020
Cadastral Survey			X	No federal surface	SSales 6/8/2020
Fire & Fuels			X	No federal Surface	S Sales 6/8/2020
Riparian and Wetlands	What impacts will leasing, and development have on riparian areas and wetlands?	X		Parcels that are likely to have riparian and / or wetlands areas have stipulation CO-28 attached in the Preferred Alternative. Due to this, along with applicable site-specific design features/COAs and state requirements applied at the APD stage, little to no impacts to riparian areas and wetlands are expected.	A Richter 7/16/2020
Aquatic Wildlife	What impacts will leasing, and development have on aquatic wildlife?	X		Parcels that are likely to have riparian and / or wetlands areas have stipulation CO-28 attached in the Preferred Alternative. Due to this, along with applicable site-specific design features/COAs and state requirements applied at the APD stage, little to no impacts to aquatic wildlife that may be present are expected.	A Richter 7/16/2020
Planning & Environmental Analysis	Public Involvement		X	The scoping period was the first opportunity for the public to comment on the proposed December 2020 competitive oil and gas lease sale. The public had another opportunity to	S Sales 7/30/2020

Program Area	Issue Statement	Further Analysis Determined Unnecessary	No Issue	Reason No further analysis needed	Resource Specialist and Date
				provide feedback through the 30-day comment period. The BLM evaluates public comment periods and lease sales on a case-by-case basis. The BLM completed its public involvement requirements for this oil and gas lease sale through the use of ePlanning publication and electronic submission of comments. These methods comply with stay-at-home orders and allow public participation without direct contact with others.	
Economics	Do low energy market conditions indicate the BLM should not proceed with leasing as the BLM is not maximizing revenue generation?		X	The BLM considers parcels for potential leasing in accordance with the MLA, implementing regulations at 43 C.F.R. Part 3100, and agency policy. Markets for all commodities fluctuate over time. The BLM does not attempt to "time" the lease of public lands for minerals development to any set of market conditions. The BLM holds competitive lease sales (auctions), with the intent of generating sale bids that accurately reflect fair market value at the time of sale, regardless of market conditions. Receipt of an Expression of Interest for particular lands	A Stillings 10/13/2020

Program Area	Issue Statement	Further Analysis Determined Unnecessary	No Issue	Reason No further analysis needed	Resource Specialist and Date
				indicates some industry interest in development of those lands. Development on federal lands has continued in recent months, despite low commodity prices.	

Chapter 2 - Alternatives

2.1 Introduction

This chapter describes the alternatives analyzed in detail. Alternatives considered but not analyzed in detail are also discussed.

2.2 Alternatives Analyzed in Detail

2.2.1 No Action Alternative

Under the No Action Alternative, the BLM would defer all of the parcels in the Royal Gorge Field Office from the December 2020 lease sale. The deferred parcels could be considered for inclusion in future lease sales.

2.2.2 Preferred Alternative

Under the Preferred Alternative, the BLM would offer twenty-five parcels consisting of 33,977.730 acres for lease and defer no parcels and no acres from the sale. The lease sale would include federal mineral estate with private surface in Las Animas and Weld counties (see Attachment A). The lands have been grouped into appropriate lease parcels for competitive sale as oil and gas leases in accordance with 43 CFR 3100 regulations. The leases would include the standard lease terms and conditions for the development of the surface of oil and gas leases consistent with 43 CFR 3100. Stipulations to protect other surface and subsurface resources would apply, as prescribed by the RMP. Attachment C lists all parcels that would be offered for lease under the Preferred Alternative with applied stipulations. Attachment D contains descriptions of the applicable stipulations, and Attachment E contains maps of the parcels.

2.3 Alternatives Considered but Not Analyzed in Detail

The No Action and Preferred Alternatives describe an appropriate range of alternatives for analysis. The BLM can choose either of the alternatives, or any combination of them (including deferral of additional parcels or portions of parcels) in the final leasing decision. The BLM therefore has determined that no other alternatives are warranted.

2.4 Plan Conformance Review

The proposed action was reviewed for conformance (43 CFR 1610.5-3) with the following plan:

Name of Plan: Royal Gorge Record of Decision and Resource Management Plan (RMP)

Date Approved: May 1996

Decision Language: BLM administered mineral estate will be open to fluid minerals leasing, exploration and production, subject to the lease terms and applicable lease stipulations.

Name of Plan: Northeast Resource Area Plan and Record of Decision as amended by the Colorado Oil and Gas Final EIS and Record of Decision

Date Approved: 09/16/86 amended 12/06/91

Decision Language: The RMP designated approximately 672,000 acres of federal mineral estate open for continued oil and gas development and leasing. The RMP (with associated amendments) also describes specific stipulations that would be attached to new leases offered in certain areas. Under the action alternatives, parcels to be offered would be leased subject to stipulations prescribed by the RMP. Therefore, the alternatives considered conform to the fluid mineral leasing decisions in the RMP and subsequent amendments and are consistent with the RMP's goals and objectives for natural and cultural resources.

Chapter 3 – Affected Environment and Effects

3.1 Introduction

The Council on Environmental Quality (CEQ) Regulations state that NEPA documents "must concentrate on the issues that are truly significant to the action in question, rather than amassing needless detail" (40 CFR 1500.1(b)). While many issues may arise during scoping, not all of the issues raised warrant analysis in an EA. Issues will be analyzed if: 1) an analysis of the issue is necessary to make a reasoned choice between alternatives, or 2) if the issue is associated with a significant direct, indirect, or cumulative impact, or where analysis is necessary to determine the significance of the impacts.

3.2 Environmental Consequences of the No Action Alternative

The No Action Alternative is used as the baseline for comparison of the alternatives. Under the No Action Alternative, twenty-five parcels totaling 33,977.730 acres would not be leased. There would be no subsequent impacts from oil and/or gas construction, drilling, and production activities. The No Action Alternative would not affect the continuation of the current land and resource uses in the proposed lease areas.

The BLM assumes that the No Action Alternative (no lease option) may result in less oil and gas production than under the Preferred Alternative. This reduction would diminish federal and state royalty income and increase the potential for federal lands to be drained by wells on adjacent private or state lands. However, oil and gas production and consumption is driven by a variety of complex interacting factors including energy costs, energy efficiency, availability of other energy sources, economics, demographics, geopolitical circumstances, and weather; therefore, it is uncertain if and to what extent the No Action Alternative may affect overall domestic oil and gas production.

3.3 Past, Present and Reasonably Foreseeable Actions

NEPA requires federal agencies to consider the cumulative effects of proposals under their review. Cumulative effects are defined in the CEQ regulations 40 CFR §1508.7 as "the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions (RFFA) regardless of what agency . . . or person undertakes such other actions." In its guidance, the CEQ has stated that the "cumulative effects analyses should be conducted on the scale of human communities, landscapes,

watersheds, or airsheds" using the concept of "project impact zone" (i.e., the area that might be influenced by the Proposed Action).

Offering and issuing leases for the subject parcels would not result in direct impacts to any resource. Nevertheless, future development of the leases could result in indirect effects. The RMP-EISs provide the BLM's analysis of cumulative effects of oil and gas development based on the information available at the time. The cumulative impacts analysis area (CIAA) in the EISs accounted for the potential impacts of development of lease parcels in the planning area together with the impacts of past, present and reasonably foreseeable actions at that time. The analysis in this EA expands upon the analysis in the EISs by incorporating new information.

The area of influence includes parcels in Las Animas and Weld counties, which has primarily short grass prairie with small areas of pinyon juniper

3.3.1 Past and Present Actions

The proposed lease parcel acreage is split estate, where the surface is not managed by the BLM. The BLM has very limited information about past and current uses. The BLM does not maintain information about non-mineral activity on split estate parcels on private land, but livestock grazing, and oil and gas development are the predominant surface uses in Weld County. Aerial photography of the parcels on the eastern plains indicates that overgrazing and several years of drought conditions have produced an almost barren landscape in some locations. No evidence suggests that any past actions by the BLM have affected these parcels. The Las Animas County parcels are located in areas with minimal oil and gas development and there are currently no producing well in the general vicinity.

3.3.2 Reasonably Foreseeable Future Actions

The Reasonable Foreseeable Development (RFD) scenario for the RGFO is an estimate of fluid mineral exploration, development, and production potential compiled for the Royal Gorge Field Office for a 20-year (2011- 2030) timeframe, based on information available at the time the RFD was written. The most recent RFD scenario is incorporated by reference, and is available at: https://eplanning.blm.gov/epl-front-office/projects/lup/39877/160710/196486/RGFO_RFD__addendum.pdf.

The chart below shows the parcels and associated oil and gas mineral development potential.

Wells per Township	Parcel Numbers	County
Very Low < 1 well	6160, 6161,6159,6163,6162,0066,6164,6166, 0075,6167,6165, 0074,6168,0076,0077,0078, 0079,0085,0088,0080,0092,0082,0084,	Las Animas

Wells per Township	Parcel Numbers	County
Low 1 < 5 wells	0081	Las Animas
Moderate 5<10 wells		
Moderately High 10-20 wells		
High >30-50 wells		
Very High > 50-150 wells	0058	Weld

The parcels are all on private surface. The BLM has no information about future surface activities on private lands, but it is possible that the current uses of the private surface will continue.

3.4 Environmental Consequences of Leasing and Potential Development

The sale of parcels and issuance of oil and gas leases is an administrative action. Under the approved RMP, stipulations are attached to mitigate any known environmental or resource conflicts that may occur on a proposed lease parcel. On-the-ground impacts would not occur until a lessee or its designated operator applies for and receives approval to undertake surface-disturbing lease actions. If the BLM receives an APD, it will prepare additional NEPA analysis. If development is approved, the BLM may require additional impact minimization measures as COAs to moderate identified adverse effects beyond the protections provided by the lease stipulations (see Attachment D).

For many parcels, the BLM cannot meaningfully determine at the leasing stage whether, when, and in what manner and intensity a lease would be explored or developed. The uncertainty at the lease sale stage includes crucial factors that will affect potential impacts, such as well density, geological conditions, development type (vertical, directional, horizontal), hydrocarbon characteristics, equipment to be used during construction, drilling, production, and abandonment operations, and potential regulatory changes over the life of the 10-year primary lease term or beyond. Therefore, many discussions of potential direct, indirect, and cumulative impacts presented in the following resource or use-specific subsections are necessarily confined to qualitative rather than quantitative characterization.

3.4.1 Issue 1: Special Status Species

What impacts will leasing and development have on special status species and/or their habitat and Potential Conservation Areas (PCAs)?

Affected Environment:

Many BLM sensitive species (black-tailed prairie dog, swift fox, Townsend's big eared bat, common kingsnake, milk snake, massasauga, mountain plover, Brewer's sparrow, ferruginous hawk, bald eagle, and golden eagle) could potentially occur on parcels available for leasing.

The BLM lists the black-tailed prairie dog as a sensitive species. Black-tailed prairie dogs primarily occur in scattered colonies throughout the eastern plains of Colorado. In the summer of 2001, Colorado Parks and Wildlife inventoried colonies by utilizing aerial survey line transects throughout their historic range. Survey results suggest that statewide, approximately 631,000 acres of black-tailed prairie dog habitat are occupied.

Swift fox primarily occur within the shortgrass and mixed grass prairie on the eastern plains of Colorado. The distribution of swift foxes became severely reduced in concert with conversion of mid and shortgrass prairies to agriculture. Swift fox dens occur in ridges, slopes, hill tops, pastures, roadside ditches, fence rows and cultivated fields. Dens may be relatively close to human habitations and swift foxes occasionally den in human-made structures such as culverts.

The Townsend's big-eared bat occurs in Colorado and throughout the west. Habitat associations include coniferous forests, deserts, native prairies, riparian communities, and agricultural areas. Distribution is strongly correlated with the availability of caves and cave-like roosting habitat, with population centers occurring in areas dominated by exposed, cavity forming rock and/or historic mining districts. Townsends' habit of roosting on open surfaces makes it readily detectable, and it is often the species most frequently observed (commonly in low numbers) in caves and abandoned mines throughout its range. It has also been reported to utilize buildings, bridges, rock crevices and hollow trees as roost sites. Foraging associations include edge habitats along streams adjacent to and within a variety of wooded habitats. They often travel long distances while foraging, including movements of over 10 miles during a single evening. Townsends' are a moth specialist with over 90% of its diet composed of lepidopteron. The primary threat to the species is almost certainly disturbance or destruction of roost sites (e.g., recreational caving, mine reclamation, renewed mining in historic districts). This species is very sensitive to disturbance events and has been documented to abandon roost sites after human visitation.

The common kingsnake is generally associated with lowland river valleys. In southeastern Colorado, it has been found near irrigated fields on the floodplain of the Arkansas River, in rural

residential areas in plains grassland, near stream courses, and in other areas dominated by shortgrass prairie. Periods of inactivity are spent in burrows and logs, in or under old buildings, in other underground spaces, or beneath various types of cover. Known from a few locations in southeastern Colorado (north to the vicinity of the Arkansas River) and a few sites in extreme southwestern Colorado (western Montezuma County), at elevations below about 5,200 feet, the species is generally difficult to find but may be locally fairly common in its very restricted range in Colorado.

The milk snake occupies a wide variety of habitats in Colorado, including shortgrass prairie, sandhills, shrubby hillsides, canyons and open stands of ponderosa pine with Gambel oak in the foothills, pinyon-juniper woodlands, arid river valleys, and abandoned mines. It generally stays hidden, except at night, and may be found under discarded railroad ties in sandhill regions. Hibernation sites include rock crevices that may be shared with other snake species. The species occurs throughout most of Colorado at elevations primarily below 8,000 feet and is generally scarce or at least hard to find, but locally fairly common.

Massasauga habitat in Colorado consists of dry plains grassland and sandhill areas. Massasauga may be attracted to sandy soils supporting abundant rodent populations. The species occurs in southeastern Colorado at elevations below about 5,500 feet.

Mountain plovers are found throughout the RGFO in suitable habitats. While the species is relatively rare, they can be found generally in open, flat tablelands that display some function of disturbances such as agricultural production, drought, grazing, fire, etc. (Knopf and Miller 1994). The Brewer's sparrow breeds primarily in sagebrush shrublands but will also nest in other shrublands such as mountain mahogany or rabbitbrush. While migrating, the species will occupy wooded, brushy and weedy riparian, agricultural, and urban areas. They are locally uncommon to common on the eastern plains and lower foothills of Colorado.

The burrowing owl is closely associated with active prairie dog colonies throughout its range. Burrowing owls require a mammal burrow or natural cavity surrounded by sparse vegetation. Burrow availability is often limiting in areas lacking colonial burrowing rodents. Burrowing owls frequently use burrows of black-tailed prairie dogs. They nest less commonly in the burrows of Gunnison's prairie dogs, skunks, foxes, and coyotes.

The ferruginous hawk inhabits grasslands and semi-desert shrublands and is rare in pinyon-juniper woodlands. Ferruginous hawks are typically winter resident on the eastern plains but may nest in this area on occasion. Winter residents concentrate around prairie dog towns. Winter numbers and distribution fluctuate greatly according to the availability of prairie dogs. Migrants and winter residents may also occur in shrublands and agricultural areas. Breeding ferruginous

hawks nest in isolated trees, on rock outcrops, structures such as windmills and power poles, or on the ground.

Colorado populations of bald eagles typically nest in large cottonwood trees along rivers and reservoirs. Eagle densities reach their peak during the winter months when migrants arrive from the north. The bald eagle is a common winter (December through February) visitor to RFGO. Bald eagle usage (winter roosting, nesting, etc.) occurs near several major riparian areas and reservoirs on the eastern plains.

Colorado populations of golden eagles occupy a variety of habitats ranging from grasslands and shrublands to forested woodlands. Nesting occurs on cliffs or in trees, but birds will range widely over surrounding habitats.

Several parcels in Las Animas and Weld County are in Colorado Natural Heritage Program (CNHP) Potential Conservation Areas (PCAs). A PCA is a land area that can provide the habitat and ecological processes upon which a particular species or suite of species depends for their continued existence. The best available knowledge of each species' life history is used in conjunction with information about topographic, geomorphic, and hydrologic features, vegetative cover, as well as current and potential land uses. The CNHP suggests specific activities or land use changes proposed within or adjacent to the PCA should be carefully considered and evaluated for their consequences to the element on which the conservation unit is based. The affected PCAs include Comanche Grassland, Purgatoire Prairie, Purgatoire Canyon Pawnee Grassland East, Southern Purgatoire, Purgatoire River and Tributaries, Luning Promontory, and Gotera Rincon.

Environmental Consequences of Leasing and Potential Development (Direct and Indirect Impacts):

The act of leasing parcels for oil and gas development would have no direct impact on wildlife resources. However, the authorization to lease parcels for oil and gas development will likely result in future development at some locations. The magnitude and location of potential development, and in turn, its potential to affect listed species or their critical habitat, cannot be determined until the site-specific APD stage. Currently, the BLM does not have specific details about future development; therefore, specific impacts to terrestrial wildlife from development remain unknown. Some generalized potential effects of development on particular species are described below.

Black-tailed prairie dog: Many areas within the range of black-tailed prairie dogs have been classified as valuable for oil and gas development. Possible direct negative impacts associated with oil and gas development include clearing and crushing of vegetation, reduction in available habitat due to pad construction, road development and well operation, displacement and killing

of animals, alteration of surface water drainage, and increased compaction of soils. Indirect effects include increased access into remote areas by shooters and OHV users. Gordon et al (2003) found that shooting pressure was greatest at colonies with easy road access as compared to more remote colonies. Conversely, oil and gas development may create areas with reduced shrub cover, providing additional habitat for prairie dogs to colonize.

Swift fox: Oil and natural gas exploration fragments existing grasslands and increases road traffic and access by humans. Impacts of this type of disturbance on swift foxes are unknown, but both positive and negative effects may be expected. On the positive side, prey abundance for swift foxes may increase in the vicinity of roads. However, loss of local habitat, increased mortality due to vehicle collisions, trapping and accidental shooting may also result (Carbyn et al. 1994).

Townsend's big eared bat: It is unlikely that the proposed lease parcels offer habitat suitable for hibernation or rearing of young Townsend's big-eared bat. Perhaps widely distributed singly or in small groups during the summer months, roosting bats may be subject to localized disturbance from development activity and relatively minor but long-term impacts from reductions in the extent of mature woodland stands as sources of roost substrate.

Reptile species: Direct effects to the BLM sensitive reptile species could include injury or mortality because of construction, production, and maintenance activities. These effects would most likely occur during the active season for these species, which is generally April to October. Indirect effects could include a greater susceptibility to predation if roads or pads are used to aid in temperature regulation. However, there is a low likelihood that these species would be substantially affected.

Mountain plover: Mountain plovers nest on nearly level ground (often near roads). Adults and chicks often feed on or near roads, and roads may be used as travel corridors by mountain plovers. These factors make plovers susceptible to being killed by vehicles. Therefore, as oil and gas infrastructure is developed and used, the probability of plover mortality or nest destruction will likely increase. While nesting locations are currently unknown, mitigation (plover nesting survey, timing limitations, etc.) to prevent take will be identified at the APD planning stage.

Brewer's sparrow: Leasing will have no impact on individual migratory birds, populations, or habitat. If leases are developed, surface disturbing activities, such as road building or pad and pipeline construction will destroy existing habitat. If surface disturbing activities occur during the nesting season, "take" of nests may occur. Noise and human activity generated during construction, drilling, and production phases will likely result in a larger impact footprint then the disturbance footprint alone.

Migratory birds, including Brewer's sparrow, may be burned, or killed by exhaust vents, heater-treaters, flare stacks, etc. if perched at the opening while in operation. An increase in activity, i.e. road traffic, will likely result in an increase in vehicular collisions with migratory birds. Mitigation proposed in the migratory bird section will be adequate to protect Brewer's sparrow.

Burrowing owl: The primary impact to the burrowing owl from developing leases on federal lands would be from the potential loss of habitat or the disruption of a nest site if development were to occur within an active prairie dog colony. However, standard lease terms would allow the BLM the flexibility to move development up to 200-meters to mitigate direct impacts to BLM sensitive species, or farther if supported by analysis. In addition, raptors are protected by a suite of stipulations (CO-03, CO-18) that require no surface occupancy within one-eighth of a mile of nests and a timing limitation to protect raptor nesting and fledging habitat.

Ferruginous hawk: Ferruginous hawks will construct nests upon oil and gas related structures. However, these nests are less successful than nests built upon natural structures due to repeated human visitation. While the footprint of individual oil and gas wells is minimal relative to other energy developments, the total habitat lost to the network of wells and connecting roads can be considerable in areas undergoing full-field development. The potential for oil and gas related disturbance of nesting, foraging or roosting raptors arises not only from new well installation activities, including road and pad construction, drilling and equipment installation over the course of several weeks to months, but also from continual servicing and maintenance of wells over their production lifetime. Raptors are protected by a suite of stipulations (CO-03, CO-18, and CO-19) that require no surface occupancy within one-eighth of a mile of nests and a timing limitation to protect raptor nesting and fledging habitat.

Bald eagle: Bald eagle foraging and nesting is dispersed and opportunistic across the entire RGFO area, with most activity centered near major riparian and reservoir areas. Surface disturbing activities that have potential to disrupt important bald eagle seasonal use activities are subject to NSO and TL provisions (CO-03, CO-18) established in the Royal Gorge RMP.

Golden eagle: Golden eagles are a wide-ranging species that is dispersed across the entire RGFO area. Surface disturbing activities that have potential to disrupt golden eagle nesting activity are subject to NSO and TL provisions (CO-03, CO-18) established in the applicable Resource Management Plans. These stipulations have been successful in protecting ongoing nest efforts and maintaining the long-term utility of nest sites in the resource area.

Several lease parcels are located within PCAs; however, the RGFO and Northeast RMPs contain a suite of stipulations that will protect many of the elements identified in each PCA if leased parcels are developed. Site specific issues may be addressed as conditions of approval at the APD stage.

Environmental Consequences of Leasing and Potential Development (Cumulative Impacts):

Throughout the lease area there are many activities currently occurring, along with historic impacts, which affect wildlife resources. These activities include oil and gas development, residential development, grazing, agriculture, mining, and recreation. While the leasing of parcels will not compound these impacts, future oil and gas development may impose deleterious effects. Every parcel is unique and cumulative impacts will need to be further evaluated at the APD stage.

Potential Future Mitigation:

All proposed lease parcels are subject to lease stipulation Exhibit CO-34 to alert lessees of measures that the BLM may use to protect potential habitat for a threatened, endangered, candidate, or other special status plant or animal species. Protective measures for these species will be applied, if necessary, at the APD stage and might include the need to move development pads, enforce timing limitations, and enforce no surface occupancy restrictions. Additional NEPA analysis will be completed as individual APDs are received for all the parcels identified in this document. Site specific field visits will be conducted as deemed necessary for those parcels that contain federally listed and sensitive species habitat. The BLM will consult with the U.S. Fish and Wildlife Service, as needed, in accordance with Section 7 of the Endangered Species Act.

A potential condition of approval that could be applied at the development phase would require operators to conduct a survey for federally listed and BLM sensitive species where potential habitat exists. If these species or key habitat features are located, the BLM may implement timing limitations and/or spatial buffers to mitigate conflicts consistent with the RGFO Resource Management Plan, Northeast Resource Management Plan and Code of Federal Regulations (43 C.F.R. § 3101.1-2).

If development is to occur from April 10 through July 10, a survey for nesting mountain plover will be required where habitat exists. A no surface disturbance buffer of 300–feet will be placed around located nests.

Raptor nests located will be protected by species-appropriate no surface disturbance buffers and timing limitations approved in the existing resource management plans. As a potential condition of approval, if a ferruginous hawk constructs a nest upon any oil and gas related platforms (e.g. tanks), the BLM will be notified, an alternative nesting structure will be constructed, and the nest moved to the alternate structure at the expense of the lessee. The BLM may require an operator to move an operation and delay activities to protect valuable wildlife resources, if supported by the site-specific NEPA analysis for the development activity.

In addition, the BLM may require relocation of proposed surface disturbing activity, up to 200 meters, or more if supported by analysis, to protect BLM sensitive plant species.

3.4.2 Issue 2: Big Game Habitat and Raptor Nesting

What are the impacts will leasing have on big game and raptor nesting?

Only Parcel 58 parcels contains a big game priority habitat (pronghorn severe winter range) as mapped by Colorado Parks and Wildlife. Mule deer, white-tailed deer, pronghorn, and/or elk may inhabit the area periodically.

Few raptor nest locations are known within the proposed lease parcels because they are located on privately owned surface, which limits the available information. Lease stipulations attached to each parcel would require raptor nest surveys to maintain site characteristics of existing nests. Additionally, timing limitations will reduce disruption of adult attendance at each known occupied nest location.

Environmental Consequences of Leasing and Development - Direct and Indirect Impacts:

In the Preferred Alternative, the act of leasing the parcels for oil and gas development would have no direct impact on wildlife resources; however, impacts at the exploration and development stage could have impacts on wildlife. The magnitude and location of direct and indirect effects cannot be predicted until the site specific APD stage of development.

At this time, specifics of potential future development are unknown; therefore, specific impacts to terrestrial wildlife caused by potential future development cannot be analyzed with accuracy at this stage. If a parcel is leased and development occurs, impacts likely to occur will be habitat loss and fragmentation (well pad construction, road construction, etc.). Wildlife could avoid preferred habitat for reasons such as human presence, noise from drilling and production facilities, increased road density and traffic.

Researchers have reported avoidance distances of pronghorn varying from 0.25 mi (Autenrieth 1983) to 0.6 mi (Easterly et al. 1991) from sources of disturbance. Based on a radio-telemetry study in the Pinedale Anticline of Western Wyoming, Berger et al. (2006) determined pronghorn avoided denser well fields associated with significant activity. Pronghorn consistently avoided areas within 100 m of natural gas well pads. During winter 2006-07, pronghorn movement patterns also indicated reduced use of the developed areas, although evidence of local or regional population effects has not yet been detected (Berger et al. 2008). Parcel 58 will have exhibit CO-09 attached to mitigate potential future impacts to pronghorn severe winter range.

Sawyer et al. (2006) demonstrated an avoidance response by mule deer of well pads and roads in the development of a natural gas field in western Wyoming and Northrup et al. (2015) conducted research indicating similar results in mule deer avoidance in the Piceance Basin of Colorado. The response was immediate (i.e., year 1 of development) and no evidence of acclimation occurred during the 3-year study. However, the indirect habitat loss caused by an avoidance response of mule deer could be reduced by 38-63% with the use of advanced technologies and proper planning that minimize the number of well pads and amount of human activity associated with them (Sawyer et al. 2006). Northrup et al. (2015) also suggested that measures aimed at mitigation impacts from drilling, such as seasonal drilling restrictions, sound and light barriers, and reductions in vehicle traffic, are likely to have the greatest benefit to deer.

Van Dyke and Klein (1996) and Buchanan et al. (2014) found elk compensated for site-specific environmental disturbance by shifts in use of range, centers of activity, and use of habitat rather than abandonment of range. Elk tended to have behavioral and distributional shifts whereby during development, elk demonstrated a higher propensity to use distances and escape cover to minimize exposure to developmental activity.

Raptors are protected by a combination of "no surface occupancy" and "timing limitation" stipulations that are attached to leases to reduce adverse effects of potential oil and gas development. This control method allows the protection of known active nest sites during the APD phase. While the footprint of individual wells is minimal, the functional habitat lost to the network of wells and connecting roads can be considerable. The potential for oil and gas related disturbances of nesting, foraging and roosting raptors arises not only from new well installation activities, including road and pad construction, drilling, and equipment installation over the course of several weeks to months, but also from continual servicing and maintenance of wells over their productive lifetime.

Several lease parcels are located within PCAs; however, the RGFO and Northeast RMPs contain a suite of stipulations that will protect many of the elements identified in each PCA if leased parcels are eventually developed. Site specific issues may be addressed as conditions of approval at the APD stage.

Environmental Consequences of Leasing and Development - Cumulative Impacts:

Throughout the lease area there are many activities currently occurring, along with historic impacts, which affect wildlife resources. These activities include oil and gas development, residential development, grazing, agriculture, mining, and recreation. While the leasing of parcels will not compound these impacts, future oil and gas development may impose deleterious effects. Every parcel is unique and cumulative impacts will need to be further evaluated at the APD stage.

Potential Future Mitigation:

A Master Development Plan may be completed for the proposed parcels in southern Las Animas County prior to initiating new disturbance, to consolidate facilities and manage well pad and road densities within the leased area. This action may minimize and reduce impacts to wildlife.

Because of the lack of raptor nesting information and the lease stipulations attached to each parcel, a standard COA would request a raptor nest survey where habitat existed. If a nest were found, the stipulations would require the lessee to maintain the integrity of site characteristics for existing nests. Additionally, timing limitations will reduce disruption of adult attendance at each known occupied nest location.

A biological inventory may be requested to gather baseline information and the BLM may require an operator to move an operation and adjust the timing of activities to protect valuable wildlife resources, if supported by inventories and site-specific NEPA analysis for the development activity.

3.4.3 Issue 3: Migratory Birds

What impacts will leasing have on migratory bird nesting and habitat?

Affected Environment:

The dominant habitat in this physiographic area is shortgrass prairie. Shortgrass is dominated by two low-growing warm-season grasses, blue grama and buffalo grass; western wheatgrass is also present, along with taller vegetation including widespread prickly-pear cactus and yucca, and cholla in the south. Sandsage prairie is found where sandy soils occur and is dominated by sand sagebrush and grasses sand bluestem and prairie sand-reed. Mixed grass (needle-and-thread, sideoats grama) and tallgrass (big bluestem, little bluestem, switchgrass) communities occur locally.

The following birds are listed on the US Fish and Wildlife Service Birds of Conservation Concern (BCC) – 2008 List for BCR 16-Southern Rockies/Colorado Plateau and BCR 18-Shortgrass Prairie and may occur within the proposed lease areas: mountain plover, upland sandpiper, Bell's vireo, Sprague's pipit, lark bunting, McCown's longspur, chestnut-collared longspur, grasshopper sparrow, northern harrier, and prairie falcon. These species have declining populations and should be protected from habitat alterations.

Environmental Consequences of Leasing and Development - Direct and Indirect Impacts:

Leasing will have no impact on individual migratory birds, populations, or habitat. If leases are developed, surface disturbing activities, such as road building or pad and pipeline construction

will destroy existing habitat. If surface disturbing activities occur during the nesting season, destruction of nests may occur. Noise and human activity generated during construction, drilling, and production phases will likely result in a larger impact footprint than the disturbance footprint alone.

Migratory birds may be burned, entrapped, and/or killed by exhaust vents, heater-treaters, flare stacks, and open pipes, etc.as a result of development related infrastructure. An increase in activity, i.e. road traffic, will likely result in an increase in vehicular collisions with migratory birds. If oil and/or gas are in economically feasible quantities, it is likely additional development will occur.

Appropriate lease stipulations to protect some migratory birds and their habitats were attached to parcels and described in Attachments A and C. Further, at the field development and APD stage it is standard procedure to include a COA on all APDs to protect migratory birds. The COA will ensure that operators take measures to prevent destruction of nests and effectively preclude migratory bird access to, or contact with, reserve pit contents that possess toxic properties (i.e., through ingestion or exposure) or have the potential to compromise the water-repellent properties of birds' plumage, or other harmful conditions associated with development.

Environmental Consequences of Leasing and Development - Cumulative Impacts:

Throughout the lease area there are many activities currently occurring, along with historic impacts, which affect migratory bird species. These activities include oil and gas development, residential development, grazing, agriculture, mining, and recreation. In areas where human development had previously modified the natural environment (i.e. agricultural, settlement, past oil and gas development) it is likely that migratory bird species richness and diversity had been compromised. However, new oil and gas development will likely cause an additive negative impact to most species of migratory birds currently present at the site. While the leasing of parcels will not compound these impacts, future oil and gas development may impose deleterious effects. Every parcel is unique and cumulative impacts will need to be addressed in the APD stage.

Potential Future Mitigation:

Pursuant to BLM Instruction Memorandum 2008-050, to reduce impacts to Birds of Conservation Concern (BCC), no habitat disturbance (removal of vegetation such as timber, brush, or grass) may be authorized during the period of May 15 - July 15, the breeding and brood rearing season for most Colorado migratory birds. The provision will not apply to completion activities in disturbed areas that were initiated prior to May 15 and continue into the 60-day period. An exception may be granted if nesting surveys conducted no more than one week prior

to vegetation-disturbing activities indicate no nesting within 30 meters (100 feet) of the area to be disturbed.

Any secondary containment system will be covered in a manner to prevent access by migratory birds. The operator will construct, modify, equip, and maintain all open-vent exhaust stacks or pipes on production equipment to prevent birds and bats from entering and to discourage perching, roosting, and nesting. Production equipment includes, but may not be limited to, tanks, heater-treaters, separators, dehydrators, flare stacks, and in-line units.

Additionally, BLM may require an operator to move an operation up to 200 meters and delay operations for up to 60 days to protect valuable wildlife resources. The BLM may limit the timing of operations or relocate them to a greater degree if supported by appropriate analysis.

3.4.4 Issue 4: Socioeconomic Conditions

What impacts will leasing and potential development have on local social and economic conditions?

Affected Environment:

The proposed parcels for the December 2020 lease sale are located in Las Animas County and Weld County, Colorado. Accordingly, the socioeconomic study area focuses on those counties and the State of Colorado as the effects of the economic activity generated by the lease sale may impact the social and economic conditions in these areas.

In 2018 Las Animas County had just over 14,500 residents, which represents approximately a 5 percent decrease in population since 2000, while the state of Colorado grew by 31 percent (Headwaters 2020). Las Animas County has been impacted by the boom and bust cycles from its mining heritage. After health care, mining (including fossil fuel) has represented the biggest employment growth since 2001. In addition to natural resource extraction, agriculture is an important economic driver. In 2017, the County had 549 farms with a market value of products sold of more than $25.8 million (USDA NASS 2019). More recently with an influx of retirees, the County is seeing transfer payments as a large part of resident's income (Headwaters 2020). The travel and tourism sector represents approximately 25 percent of the jobs in the County (Headwaters 2020).

Since 2000, Weld County has seen a growth of approximately 7,800 residents (Headwaters 2020) with much of the population growth associated with increased oil and gas production. This growth has resulted in a more diverse and increasingly urban population compared to the county's rural roots. Many of the county's economic sectors have seen increased growth since 2000—at the low end, a 19 percent increase in manufacturing and wholesale trade jobs to a 68

percent increase in education employment. The only job losses are in the farm and information sectors. The influx of new residents and oil and gas development has put stress on Weld County's transportation infrastructure.

Leasing mineral rights for the development of federal minerals generates public revenue through the bonus bids paid at lease auctions and annual rents collected on leased parcels not held by production. Proposed parcels approved for leasing are offered by the BLM at a minimum rate of $2.00 per acre at the lease sale. These sales are competitive and parcels with high potential for oil and gas production often command bonus bids in excess of the minimum bid. In addition to bonus bids, lessees are required to pay rent annually until production begins on the leased parcel, or until the lease expires. These rent payments are equal to $1.50 an acre for the first five years and $2.00 an acre for the second five years of the lease. Annual lease rents continue until one or more wells are drilled that result in production and associated royalties. The federal oil and gas royalties on production from public domain minerals equal 12.5 percent of the value of production (43 CFR 3103.3.1).

The State of Colorado receives 49% of the total revenue associated with federal mineral leases. Federal mineral lease revenue for the State of Colorado is divided as such: 48.3 percent of all mineral lease rent and royalty receipts are sent to the State Education Fund. Ten percent of all mineral lease rent and royalty receipts are sent to the Colorado Water Conservation Board. Approximately two percent of all mineral lease rent and royalty receipts are distributed directly to local school districts originating the revenue or providing residence to energy employees and their children. Forty percent of all mineral lease rent and royalty receipts are sent to the Colorado Department of Local Affairs, which then distributes half of the total amount received to a grant program, designed to provide assistance with offsetting community impacts due to mining, and the remaining half directly to the counties and municipalities originating the federal mineral lease revenue or providing residence to energy employees.

Bonus payments are allocated separately from rents and royalties in the following manner: 50 percent of all mineral lease bonus payments are allocated to two separate higher education trust funds: the "Revenues Fund" and the "Maintenance and Reserve Fund." The Revenues Fund receives the first $50 million of bonus payments to pay debt service on outstanding higher education certificates of participation. The Maintenance and Reserve Fund receives 50 percent of any bonus payment allocations greater than $50 million. These funds are designated for controlled maintenance on higher education facilities and other purposes. The remaining 50 percent of state mineral lease bonus payments are allocated to the Local Government Permanent Fund, which is designed to accumulate excess funds in trust for distribution in years during which federal mineral lease revenues decline by ten percent or more from the preceding year.

Environmental Consequences of Leasing and Development - Direct and Indirect Impacts:

The direct effect of leasing would be the payments received from leasing all or a subset of the more than 33,977.730 acres of federal mineral estate parcels proposed for the December 2020 sale. Indirect effects that might result, should exploration or development of the leases occur, could include increased employment opportunities related to the oil and gas and service support industry in the region as well as the economic contributions to federal, state, and county governments related to lease payments, royalty payments, severance taxes, and property taxes.

Past research on social impacts associated with energy development shows that social well-being often decreased during a boom, but then tended to increase once the boom is over. A comparative and longitudinal study conducted in Delta, Vernal, and Tremonton, Utah, and Evanston, Wyoming, addressed issues of social well-being in boomtowns (Brown et al. 2005; Brown et al. 1989; Greider et al. 1991; Hunter et al. 2002; Smith et al. 2001). With the exception of Tremonton, each of these communities experienced a boom during the late 1970s and early 1980s. Delta's boom resulted after the construction of a power plant while the booms in Evanston and Vernal were primarily related to oil and gas development. At least four surveys were conducted in these communities from 1975 to 1995. Several indicators of social well-being were examined, including perceived social integration, relationships with neighbors, trust of community residents and community satisfaction. Delta and Evanston showed similar patterns associated with these indicators. During the peak boom years, residents experienced diminished perceived social integration, relationships with neighbors, trust of residents, and community satisfaction. Interestingly, Brown and others (2005) pointed out that the greatest declines in community satisfaction in Delta occurred just before the largest population increase of the 20-year study period, indicating that changes in population cannot alone account for shifts in community satisfaction and social integration. Nonetheless, by 1995, the levels of these indicators had returned to or exceeded pre-boom levels.

Another 2011 study highlights several of the changes that have been seen across the Bakken oil counties and the impacts to quality of life (Bohnenkamp et. al. 2011). For example, the study highlights that the familiarity of residents with other residents and the safety often felt in small rural communities has shifted to in-migration of new people and safety concerns resulting from not knowing these people. The study also highlights concerns over housing prices and values increasing and the changing of the population. While there is an in-migration of people for oil field jobs, there has also been an out-migration of long-time residents due to not being able to afford the rising housing costs (Bohnenkamp et. al. 2011).

The proximity of oil and gas wells and related facilities can influence nearby residential property sales. Several studies have attempted to estimate how property values are impacted by nearby oil or gas exploration, drilling, and production. See Krupnick and Echarte (2017) for a summary of

recent studies. In general, these studies find that, at the time of sale, the presence of oil and gas wells near the property reduces the property value relative to what it would have sold for without a nearby well. Unfortunately, the explicit and implicit assumptions used in these estimates (such as the maximum distance for a 'nearby well') vary a great deal from study to study, as does the size of the price impacts, which range from zero to negative 37 percent (Krupnick and Echarte 2017).

Several studies have found who owns the mineral rights is a possible source of property value differences. Split estates are when landowners do not own mineral rights but may be subject to federal mineral development on their land. In one study (Boslett et. al. 2016) property value estimates tended to be significantly lower in a Colorado region where the minerals were owned by the federal government compared to other areas where a comparable property was located above a non-federal mineral estate. Usually, split estate landowners enter into a surface use agreement with the developer and receive compensation, i.e. income, for the use of their land. Estimates of how individual properties are affected by nearby oil and gas development vary from case to case depending on specific location and the exact character and features of a property.

Multiple studies identify concerns about the possible environmental impacts associated with oil and gas exploration and development as one reason for property value differences. But these concerns (and their influence on prices) can be tempered. Roddewig and others (2014) states that "(p)ast real estate market studies indicate that investigation and remediation can limit price and value impacts from oil and gas contamination." Note that the BLM actively investigates and seeks remediation of oil and gas contamination resulting from production activities on federal land or involving federal minerals.

Current research provides little information on how long these price impacts persist. Bennett and Loomis (2015) in a study in Weld County, Colorado estimate a 1% decrease in urban house prices for every well being drilled within one-half mile "during the time the buyer is deciding upon buying the house," but "(o)nce the well moves out of active drilling and into becoming a producing well, all our models show there is no statistically significant negative effect on house prices."

Oil and gas exploration, drilling, or production may increase traffic and traffic delays, noise, and visual impacts. Increased truck traffic hauling heavy equipment, fracking fluids, and water as well as increased traffic associated with oil workers and increased populations could cause more traffic congestion, increase commuting times, and affect public safety. However, it is unknown when, where, how, or if future surface disturbing activities associated with oil and gas exploration and development such as well sites, roads, facilities, and associated infrastructure would be proposed. It is also not known how many wells, if any, would be drilled and/or completed, what types of technologies and equipment would be used, and what types of

infrastructure would be needed for production of oil and gas. Areas with higher development potential, such as the Weld County parcel, are more likely to experience these impacts.

Due to energy market volatility and the dynamics of the oil and gas industry it is not feasible to predict the exact effects of this leasing action, as there are no guarantees that the leases will receive bids, that any leased parcels will be explored, or that exploration will result in discovery of viable fluid mineral production. The type, magnitude, and duration of potential impacts cannot be precisely quantified at this time. Any future drilling activity requires an APD and requisite NEPA analysis, which would include consideration of socioeconomic conditions at the time of the proposal, and any additional socioeconomic impacts that could be associated with the disturbance and drilling on the specific parcel.

Environmental Consequences of Leasing and Development - Cumulative Impacts:

Any possible future development of fluid mineral resources resulting from this lease sale, together with the current oil and gas development could generate the economic and social impacts described in the proposed action. The magnitude of these types of socioeconomic effects would depend on the level and pace of development of individual parcels. Weld County already has oil and gas infrastructure in place.

Potential Future Mitigation: Mitigation would be determined if leased parcels are proposed for development.

3.4.5 Issue 5: Environmental Justice

Are there environmental justice populations that may be disproportionately adversely affected?

Affected Environment:

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, directs that "each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations…" The purpose of EO 12898 is to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects on low-income populations, minority populations, or Indian tribes that may experience common conditions of environmental exposure or effects associated with a plan or project. A review of U.S. Census Bureau 2018 data (U.S. Census Bureau 2019a and 2019b), indicates that Las Animas County meets the criteria of having a minority population (Hispanic population) and low-income populations that are five percentage points greater than

the State of Colorado. Weld County meets the criteria for Hispanic population. Thus, the proposed action is occurring in an area considered to have environmental justice populations.

Environmental Consequences of Leasing and Development - Direct and Indirect Impacts:

No surface-disturbing activities are associated with a lease sale; therefore, direct impacts from the lease sale would not disproportionately adversely affect environmental justice populations. While leasing is one of the steps necessary for potential future oil and gas development of federal minerals to occur, due to energy market volatility and the dynamics of the oil and gas industry it is not feasible to predict the exact effects of the leasing action, as there are no guarantees that the leases will receive bids, and that any leased parcels will be explored or that exploration will result in discovery of viable fluid mineral production. It is unknown when, where, how, or if future surface disturbing activities associated with oil and gas exploration and development such as well sites, roads, facilities, and associated infrastructure would be proposed. It is also not known how many wells, if any, would be drilled and/or completed, the types of technologies and equipment would be used, and the types of infrastructure needed for production of oil and gas. The BLM will conduct additional NEPA analysis on site specific impacts, including on environmental justice issues, if an APD is submitted.

As noted in Chapter 4, the BLM is consulting with Tribes to solicit information on potential issues and concerns to be considered in the environmental analysis. Additionally, the BLM has considered all input from persons or groups regardless of age, income status, race, or other social or economic characteristics. The outreach and public involvement activities taken by the BLM are discussed in Section 1.4 and Chapter 4.

Environmental Consequences of Leasing and Development - Cumulative Impacts:

Any possible future development of fluid mineral resources resulting from this lease sale would be in addition to current levels of development. As noted above, without more site-specificity on the level and pace of future development, the BLM cannot ascertain whether there would be disproportionately high and adverse health and environmental effects and what those effects may be to local environmental justice populations.

Potential Future Mitigation:

Mitigation would be determined if leased parcels are proposed for development.

3.4.6 Issue 6: Air Resources

What impacts on air resources could result from leasing, and any potential future air pollutant emissions associated with projected oil and gas development?

In accordance with Section V of the BLM Colorado's Comprehensive Air Resource Protection Protocol (CARPP), the BLM Colorado State Office air resource specialists have prepared the Annual Report (2.0) as a comprehensive assessment tool to assist in the preparation of NEPA analysis for oil and gas projects. The Annual Report provides up to date information on the state of the atmosphere (such as trends in air pollutant concentrations and Air Quality Related Values (AQRV)) and oil and gas development (current rates of drilling and production, updated emission inventories) for each Colorado field office or planning area that has federal minerals. The report also places this information in the context of the Colorado Air Resource Management Modeling Study (CARMMS 2.0), which provides cumulative analyses of projected conditions relative to National Ambient Air Quality Standards (NAAQS), and AQRV impacts, for multiple projected oil and gas development scenarios with varying emissions levels in Colorado through year 2025.

The Annual Report (AR) is a web-based, dynamic, data-driven document that allows the BLM Colorado to convey a vast amount of information in a relatively compact and reusable framework. Consistent with CEQ regulation 40 CFR §1502.21 - Incorporation by reference, and mandates to reduce paperwork and NEPA preparation time, the data from the AR is incorporated by reference into this EA to aid in describing the affected environment, the indirect effects of leasing, and the potential cumulative impacts associated with the proposed action. All of the above referenced documents (CARPP, CARMMS, AR) are available to the public on the BLM Colorado's website at:

https://www.blm.gov/programs/natural-resources/soil-air-water/air/colorado.

Affected Environment:

The sections of the AR that describe the affected environment are as follows:

Section 2.0, Affected Environment – This section of the report introduces air resource concepts and provides background for the air quality impacts analysis in this EA. It describes and defines the applicable general and oil- and gas-specific air quality regulations as well as the authority for such laws; provides a basic overview of the science and issues associated with the various types of air pollutants (criteria, hazardous, and greenhouse gases (GHG)), air quality related values (visibility, deposition, and ozone), any applicable metrics for analysis, and the context for analysis relative to various air related geographic designations (e.g., attainment, non-attainment, Class I airsheds), and describes available pollutant monitoring data and location-based national emission inventory data.

Section 4.5, Royal Gorge Field Office – This section of the report describes the affected environment of the RGFO field office. It provides an overview of the air and atmospheric conditions and current air quality trends in the RGFO; summarizes the CARMMS source

apportionment modeling results; lists details about the current and trending pace of oil and gas development; shows the estimated oil and gas development emissions by year, and the scaled impacts relative to the CARMMS scenarios, and presents findings for all of this data. Note: this section is also referenced for data in support of the effects analysis in this EA.

Section 6.0, Climate Statistics and Analysis – This section of the report describes Colorado's climate and trends; the current and projected climate change impacts from the global emissions scope; provides a breakdown of the various global modeled emissions scenarios (pathways) and the estimated carbon budget; provides report year and projected emissions for the BLM Colorado (federal) and cumulative federal (i.e. total national federal) fossil fuel mineral development and downstream combustion; discusses market simulation model results for the possible substitution of energy sources absent Colorado federal minerals, and describes the projected regional and statewide changes that could occur under various emissions scenarios in the future. This section is referenced to provide climate change analysis for regional and global scope emissions beyond those pertaining to the Preferred Alternative which are disclosed and discussed in this EA. Note: this section is also referenced for data in support of the effects analysis in this EA.

Environmental Consequences of Leasing and Development - Direct and Indirect Impacts:

In addition to the AR sections referenced above, the following sections of the AR are incorporated by reference to describe the Direct and Indirect effects of leasing:

Section 3.0, Analysis Methods and Tools – This section of the report describes the basic science of air resources analysis; introduces the CARMMS reasonably foreseeable cumulative impacts analysis for oil and gas development in Colorado; describes the tracking and analysis methods used within the Annual Report to scale current cumulative development relative to the CARMMS forecasts; describes why scaling report year emissions is a scientifically valid method for describing cumulative impacts and trends; and provides an interactive element to explore CARMMS meta data and results for the RGFO, including: model scenario and assumption parameters, NAAQS and AQRV source apportion results and plots for each modeled scenario, detailed high scenario emissions projections, and cumulative model results and plots for each modeled scenario (including model attainment test software future difference plots). This section is referenced to support the analysis methodologies used in this EA.

Section 5.0, Cumulative Air Resources Assessment – This section of the report describes the cumulative assessment of impacts from BLM Colorado actions as a whole for tracked emissions relative to the CARMMS model results; provides an interpretation of the raw results for the three modeled scenarios for NAAQS and AQRV impacts; discusses the report year tracking of oil and gas metrics and emissions relative to the CARMMS scenarios, and discloses the scaled report year impacts to provide the reader with an overall sense of the current intensity of BLM-

authorized actions. This section is referenced to provide cumulative context and analysis for this EA.

No Action Alternative - Potential Environmental Consequences:

Under the No Action Alternative all parcels would be deferred from this sale. No development on the parcels would occur and there would be no lease sale related indirect effects from any potential future exploration and development.

Of all the parcels, only the Weld County parcel is located in an area of high hydrocarbon potential and active oil and gas development. Most of the parcels (located in Las Animas County) have very low or low development potential. As a practical matter, the difference in potential air quality impacts between the No Action and proposed action is minimal, because the high potential parcel (i.e. the parcel with the highest likelihood of producing economically viable quantities of hydrocarbons) represents less than 1% of the total acres in the proposed sale parcels.

Analysis of Colorado Oil and Gas Conservation Commission (COGCC) and Office of Natural Resources Revenue (ONRR) data provides further rationale for this conclusion. The tracked COGCC spud data from the Annual Report (see "Development Map" link, section 4.5) shows that no wells have been drilled in Las Animas County since at least 2015. In fact, according to COGCC data, the last time a producing well was drilled in Las Animas County was in 2011. COGCC production data shows that no oil has been produced in the county since 2014, and although the county ranks 6th in the state for gas production, the 2019 data shows that 92% of this production was from coal bed methane (CBM) wells. Most of the CBM wells are located in the Raton basin, but none of the parcels under consideration are within the basin boundaries. Similarly, the ONRR data shows there has been no federal oil production in the county since 2003, and federal gas production has declined 65% since the peak in 2008. The data suggest that significant development on the southern parcels is unlikely.

The production trends, low hydrocarbon potential, and economics suggest that full parcel development in Las Animas county is unlikely to occur, even under the Preferred Alternative. Although these facts are not perfect predictors of future activity on the parcels, they suggest that the No Action Alternative would be expected to result in only slightly less oil and gas development activity as compared to the Preferred Alternative.

Accordingly, the potential air-quality-related impacts from the No Action Alternative would be expected to approximate those of the Preferred Alternative. Consistent with the information described above, the source apportionment modeling for the CARMMS 2.0 high oil and gas development scenario does not predict significant impacts for new oil and gas development across the entire RGFO. Potential GHG emissions and climate change impacts for both

alternatives would also be similar, as the future potential GHG emissions difference for new oil and gas production that could occur for the subject lease parcels relative to the No Action Alternative would likely be small when compared to broader scope GHG emissions inventories (U.S., Global).

Proposed Action Alternative - Potential Environmental Consequences:

The decision to offer the identified parcels for lease would not authorize or result in any direct emissions of air pollutants or air resource impacts. However, if at any point during the initial 10-year leasehold period a proposal for exploration or development is authorized, then it is likely that indirect emissions of criteria, VOC, HAP, and GHG pollutants would occur on or near the lease parcels and downstream at the point of product end-use consumption. Subsequent authorizations could result in both short- and longer-term emissions of these pollutants depending on if economically viable quantities of fluid minerals are discovered.

Subsequent authorized activities could include soil disturbances resulting from the construction of well pads, access roads, pipelines, power lines, and drilling. Any disturbance is expected to cause increases in fugitive dust and potentially inhalable particulate matter (specifically, PM_{10} and $PM_{2.5}$) in the project area and immediate vicinity. Particulate matter, mainly dust, may become airborne when vehicles travel on dirt roads to drilling locations.

Air quality may also be affected by exhaust emissions from engines used for drilling, transportation, completion, gas processing, compression, and other uses. These sources will contribute to potential short- and longer-term increases in the following criteria pollutants: carbon monoxide, ozone (a secondary pollutant, formed via photochemical reactions between VOC and NO_X emissions), nitrogen dioxide, and sulfur dioxide. Non-criteria pollutants, for which no national standards have been set, may also increase. Examples of non-criteria pollutants include carbon dioxide, methane, and nitrous oxide (GHGs); air toxics, such as benzene, xylenes, n-hexane, and formaldehyde, and total suspended particulates (TSP). Air quality related value impacts to visibility and atmospheric deposition may also occur at nearby Class I areas depending on the intensity of the proposed activities.

During exploration, development, and production, “gas’ may at times be flared and/or vented as allowed by regulation to maintain the safe operational integrity of the well and working environment. This gas is likely to contain volatile organic compounds and air toxics that could also be emitted from reserve pits (if used), produced water disposal facilities, and/or tanks located at the site. The development stage may include the installation of pipelines for transportation of raw product and/or new centralized collection, distribution, and gas processing facilities.

As discussed above, the potential development on the lease sale parcels, save the Weld County parcel, is not expected to be very intensive. Since it is unknown if the parcels would actually be explored or developed, or the extent of any subsequent exploration and development on either a temporal or spatial scale, it is not possible to provide a definitive air quality impacts assessment for any individual parcel through dispersion modeling or another acceptable method at this time.

Any future proposals for subsequent exploration and development submitted via an Application for Permit to Drill (APD) will be subject to additional analysis as required by NEPA. In accordance with the section III.B of the CARPP and the attached lease notice, CO-56, the BLM Colorado will request or develop an emissions inventory with project-specific information covering all emissions generating activities projected to occur. Most proponents will be expected to submit project data through the BLM's Emissions Modeling and Inventory Tool (EMIT), which provides a streamlined process for project vetting and analysis. At a minimum, the analysis will evaluate if the contemporaneous incremental increases in emissions from the proposed project would be expected to cause significant impacts to air resources at local and regional scales. All proposed activities would be subject to, and evaluated in accordance with applicable local, state, and federal air quality laws and regulations.

Emission Estimates

For this assessment, given the uncertainty of actual development, the BLM is opting to provide a conservative range of potential emission impacts associated with a hypothetical lower and upper bound development scenario.

The lower bound estimate of the range reflects the fact that for any one sale parcel to be held beyond the initial 10-year lease term, the lessee must develop a single producing well. The BLM leasing statistics for Colorado show that on average over the last five years (2015 – 2019), only 52% of leased federal minerals are held by production. Moreover, while this percentage is increasing, this change is almost entirely associated with declines in total leased acres due to lease expiration without production, as the acreage held by production has remained relatively static. (See AR, Table 5-1, and referenced source data). Based on the total number of parcels considered in the Preferred Alternative (25), and the current rate of leases held by production, the lower bound estimate is approximately 13 new producing wells.

To calculate an upper bound estimate of the number of wells that could be developed on the proposed lease parcel acreage, the BLM used statewide federal spacing statistics, as shown in AR table 5-1, in conjunction with the total sale acres and the percentage of leased acres held by production. The 5-year average spacing (slightly less than 210 acres per well) is based on the annual averages of the statewide total acres held by production, divided by the average producing federal well counts. The density of well spacing on any individual lease can vary

based on several technical factors (such as geology and well communication), but in general the spacing is directly proportional to the verified mineral potential of that area. Because the sale covers a broad geographic area within the RGFO where approximately 99% of the acres are estimated to have very low or low mineral potential, using the statewide federal averages, which include actual development in high to moderate mineral potential regions, is quite conservative. The calculation produces an upper bound estimate of approximately 84 producing wells.

Emission estimates for the range of potential development for this sale were calculated using a recent analysis of operator provided data for submitted projects all around the DJ Basin. The analysis produced a weighted average of emissions based on the project well counts. The data is most relevant to the single Weld County parcel , and the emissions are likely overstated for the Las Animas County parcels due to expected differences in development and production volumes. The wells in the DJ Basin were almost exclusively horizontal bores with laterals of 1.5 to 2.5 miles. An operator is unlikely to invest in that type of development initially for the very low or low mineral potential estimated to exist on the Las Animas County parcels. However, using the average emission values is appropriate for leasing-stage analysis because the exact equipment configurations for future development, the type of development (conventional, unconventional, horizontal or vertical) and the timing of any such development cannot be predicted with certainty. Equipment counts, types, initial production volumes and declines (usually provided by operators during APD submittal), and the various controls that may or may not be implemented (subject to regulation or otherwise) all affect the rates at which pollutants are emitted from year to year. Additionally, most projects in the DJ Basin are not 100% federal, i.e. they co-produce fee minerals in various percentages. In unproven areas (i.e. areas with low development) operators may draw out development over multiple years to verify the mineral resources and adjust their development plans and implementation designs accordingly. Although the averages do not directly represent any actual project, the data provides a relative sense of intensity of annual emissions that could be expected for each well that could be developed under either of the bounding scenarios. Because the emission estimates are based on development in a high-production area, they are very conservative for the Preferred Alternative analyzed in this EA.

The per well estimates include direct and indirect (midstream) emissions from development and production sources including, well pad, access road, and pipeline construction; drilling and completion activities; stationary engines, process components, pneumatics, heaters, tanks, maintenance activities, and all related traffic. Indirect emissions of GHGs from downstream end-use are estimated and discussed separately below.

Emission Range Estimates for Proposed Parcels (tons/year)

Range ID	PM_{10}	$PM_{2.5}$	VOC	NO_X	CO	SO_2	CO_2	CH_4	N_2O	HAPs
Per Well Construction	2.63	0.77	4.09	12.35	9.65	0.37	1,774	4.70	0.11	0.19

Lower Bound Construction	34.19	10.01	53.17	160.55	125.5	4.81	23,062	61.1	1.43	2.47
Upper Bound Construction	220.9	64.68	343.5	1,037	810.6	31.1	149,016	394.8	9.24	15.96
Per Well Production	0.15	0.08	3.69	2.48	3.55	0.03	1,486	0.26	0.00	0.23
Lower Bound Production	1.95	1.04	47.97	32.24	46.15	0.39	19,318	3.38	0.00	2.99
Upper Bound Production	12.60	6.72	309.9	208.32	298.2	2.52	124,824	21.84	0.00	19.32

Potential Impacts

As previously stated, at the time of leasing, BLM does not know precise locations, initial development rates, equipment configurations, or the independent timing of development that may occur on any lease parcel. A currently unforeseeable combination of parcels from this sale, previous sales, and future sales could all be developed and/or producing federal minerals at the same time at some point in the future.

The most appropriate way for BLM Colorado to describe potential future emissions that may include emissions resulting indirectly from this sale in terms of an air quality assessment is to use the RGFO source apportionment results and the associated metric data provided by the CARMMS model as an upper bound or ceiling for the contemporaneous emissions. Sections 4.5 and 5.0 of the AR describe the current source apportionment emissions tracking and impacts relative to the RGFO and Colorado as a whole. The CARMMS scenario projections of oil and gas development across each field office and the state are based on existing and historical development trends, and information about areas identified as having high to moderate mineral potential, high interest by potential oil and gas operators, or information from BLM staff or the latest BLM Reservoir Management Group indicating likely future development.

The tracked emissions data for existing projects in the AR shows that within the RGFO, and cumulatively across the state, emissions from actual development remain well below the maximum emissions associated with full contemporaneous development projected in the CARMMS high development scenario (including any potential development on the lease sale parcels). The relative linearity of the CARMMS results as a function of base to future emissions levels (see AR section 4.0, Interactive Element 4) shows that even if emissions outpace the current maximum projections at some point in the future, the impacts are unlikely to be significant given that the high scenario impacts are quite low.

Specifically, the modeled CARMMS results for the high development scenario within the RGFO show that oil and gas development will not significantly contribute to any existing or potential air quality issues within or adjacent to the field office, including the ozone NAA and the nearby Class I areas (Rocky Mountain National Park and the Great Sand Dunes National Park). Source

apportionment impacts to AQRVs from the RGFO high scenario are below the individual project-level data analysis thresholds (DATs) defined by Federal Land Managers (FLMs) at all Class I areas. Similarly, the AR discusses the contribution of emissions resulting from projected oil and gas development in the RGFO (source apportionment) to ambient air quality, and explains that even where CARMMS predicts an exceedances of a model significance impact level (i.e. a SIL, established by CDPHE), the projected emissions either do not cause a modeled NAAQS violation at cumulative scales (nitrogen dioxide), or are the result of likely model bias (particulate matter). Further, all of the DATs and model SILs are intended for analyses at the scale of individual development projects, not cumulative or quasi-cumulative state and field office scales. Absent such cumulative thresholds, the project-level thresholds described here and in the AR are very conservative.

Over the AR tracking period (2016 to present) cumulative federal development accounts for just 5% of all development in the RGFO on a well count basis. In reality, this percentage is even smaller when considering that most APDs processed include an analysis of co-produced non-federal minerals. The non-federal production associated with these wells results in an effective development rate of approximately half of the well count basis. This is especially true in the DJ Basin (which includes the ozone NAA) where federal minerals tend to be a patch work of smaller parcels adjacent to larger tracts of fee minerals, or where some federal minerals have no surface occupancy stipulations that tend to drive development from federal minerals onto the fee tracts and result in co-production.

General Conformity

As described in section 2.0 of the AR, federal actions taking place in an air quality region designated as either Maintenance or Non-attainment may be subject to EPA's general conformity rule, as directed in the Clean Air Act, 42 U.S.C. § 7506. For this sale, one proposed lease parcel (CO-2020-12-0058) is within the Northern Front Range Ozone NAA. BLM has evaluated the proposed lease sale in accordance with the provisions of 40 CFR Part 93, Subpart B. Based on 40 CFR § 93.153(c), the BLM has determined that the requirement to perform a full conformity determination does not apply to the Proposed Action for the following reasons:

- Under 40 CFR 93.153(c)(2), a conformity determination is not required for actions "which would result in no emissions increase or an increase in emissions that is clearly de minimis." Leasing does not authorize emission-generating activities, and therefore does not directly result in any net emissions increases.

- A conformity determination is not required "where the emissions (direct or indirect) are not reasonably foreseeable" [40 CFR § 93.153(c)(3)]. While this EA provides information for the factors that should be considered to determine a reasonable estimate

of foreseeable emissions for the purposes of a NEPA cumulative impacts analysis (estimates made for cumulative air quality impacts and GHG and Climate Change assessment), the BLM does not have specific information about how or if any specific parcel under consideration will be developed during the initial 10-year lease period, such that a more precise emissions inventory could be reasonably estimated and compared to the thresholds provided in 40 CFR § 93.153(b). As noted earlier in this document, several factors influence potential emissions estimates and can be highly variable depending on the project. Although the general ranges of potential emissions used for analysis and discussion in this EA are adequate for NEPA analysis, the estimates are not "reasonably foreseeable" under the definition in the general conformity rule and are not sufficiently specific to support conformity analysis. The emissions will not be reasonably foreseeable with that degree of specificity until the BLM receives a specific development proposal.

- 40 CFR § 93.153(d)(1) provides that a conformity determination is not required for federal actions or portions thereof that include major or minor new or modified stationary sources that require a permit under the new source review (NSR) program (Section 110(a)(2)(c) and Section 173 of the [CAA]) or the prevention of significant deterioration program (title I, part C of the [CAA]). It is uncertain at this time, but highly likely that several project design features, including equipment sets such as tanks, separates, compression engines, pump jacks, and dehydration units, will require at least a minor new source review (permit) prior to constructing such facilities to implement any subsequent development proposals. Emissions from such permitted facilities would not be subject to the general conformity analysis provisions. For example, among the recent projects analyzed to produce the emissions estimates disclosed above (some of which were in the ozone NAA), most include permitted storage tanks and stationary engines; several also have permitted heaters and production stream components.

- Finally, an onshore lease sale is analogous to the example provided in 40 CFR § 93.153(c)(3)(i), "Initial Outer Continental Shelf lease sales which are made on a broad scale and are followed by exploration and development plans on a project level." Similarly, substantial emission-generating activities cannot occur without further BLM analysis and approval of proposals for exploration and development operations. The BLM will assess project specific impacts on air resources during the parcel development (permitting) stage, including potential impacts to air quality related values at nearby Class I areas. More detailed information in the form of a specific development proposal will be available to the BLM at the development stage, thus enabling a more precise estimate of emissions to determine potential impacts on air quality in analysis at that time.

Greenhouse Gases and Climate Change

The bulk of GHG emissions resulting from potential future oil and gas development projects comes from the eventual end-use of any produced hydrocarbons themselves, assuming economically viable quantities of fluid minerals are discovered for any individual lease. In most cases hydrocarbons are used for energy production or in industrial, commercial, and residential applications where combustion is the transformative process used to extract the potential energy of the product. Note that the indirect emissions from potential future construction and production activities are shown in the table above.

Here the BLM is providing two methods of analysis to provide a range of potential downstream GHG emissions associated with combustion of oil and gas produced over an estimated parcel production lifetime of 30 years. The first method is a bottom-up analysis that utilizes the range of wells that could be developed as discussed above in conjunction with an analysis of COGCC production data. The BLM analyzed five years of production data (2015 - 2019) to define an average state-wide well for both production volumes of liquid and gas hydrocarbons, and temporal decline. For each report year the BLM organized production data by well age and constructed a data set out to thirty years using only the calculated mean values within one standard deviation of the sample mean to eliminate under and over producing outliers. Wells that lacked data to calculate an age (first reported production date) or did not report production volumes for either oil or gas for any data year were also excluded. The BLM selected the maximum production rate for each year from the five-year dataset to generate a reasonable estimate of production that could be expected over a thirty-year period for an “average well” anywhere in the state. The raw data shows that the first nine to ten years of a well’s life produces a typical decline for oil, while gas production was slightly less “typical” (i.e. peak production occurs subsequent to the first coupe production years). The data for both oil and gas production gets a bit “noisy” after the initial decline period of nine to ten years. To produce a “smooth” dataset for regression analysis, the data was sorted to eliminate the gas inconsistencies and the noise following the initial declines. The sorted data sets for oil and gas were then normalized and averaged to produce a “typical” decline curve that could be used to estimate oil and gas production over the life of a well. The regression trend lines have R2 values in excess of 0.95 and indicate high quality for analysis purposes. The combustion emissions associated with oil and gas potentially produced by each well are estimated using EPA emissions factors that are disclosed in the AR.

The second method is a top-down analysis that utilizes the aforementioned leasing statistics and the calculated 5-year average estimates of downstream combustion emissions shown for each individual report year in table 6-1 of the AR. The 5-year average of downstream GHGs is divided by the 5-year average of lease acres held by production to determine an average amount

of GHGs generated per lease acre from federal minerals. Here the BLM makes a slight adjustment to the GHG emissions per acre to account for the "aged" production the data represent. The analysis of COGCC data used in the first method shows that new wells are driving production and that the average mean production year is shifting forward earlier in the life of the well for both oil and gas volumes (the mean production year is defined as the year in the life of a well when half of the total expected production volume, or the Estimated Ultimate Recovery (EUR), is produced). Over the five years of data analyzed, mean oil production shifted from year 5 to year 3 and mean gas production shifted from year 12 to year 2. Similarly, an analysis of tracked production for the RGFO in the AR shows that 81% of fluids and 66% of gases are reported from wells developed within the last four years. To capture the age differential production that could be expected from newer wells on the lease parcels the per acre emissions were adjusted by two years in a "reverse" decline calculation using the same curve formula developed to project declines forward in time. As an aside, there is no precise way to estimate the age differential from new wells on new leases given the inherent variability that can be expected from parcel to parcel and well to well. The 2-year reverse decline seems reasonable as compared to using the average ages of wells in the datasets (13 years), which would be far too conservative given the shift in the mean production year (i.e. newer wells exhibit steep initial declines). The high range for this method assumes all of the proposed parcels are eventually developed, while the low range assumes the parcels are developed at a rate consistent with the existing fraction of existing leases held by production.

The resulting range of combustion related GHG emissions estimates from both methods are shown in the table below. Each method relies on averages of data that may not be representative of any single future project due to the various factors discussed above. Both methods provide a conservative and reasonable range (broader or tighter) of estimated downstream emissions, given that most of the data used in this analysis is from wells developed in the higher mineral potential regions (leases) around the state. Note that the lease sale method includes estimates of life-cycle assessment (LCA) emissions back calculated from the overall production estimates, while the well count method CO2e estimates include the direct emission contributions calculated from the GHGs shown in the table above. LCA estimates are taken from a Congressional Research Service report titled, "Life-Cycle Greenhouse Gas Assessment of Coal and Natural Gas in the Power Sector" as detailed in section 6.0 of the AR. The estimates cover extraction, processing, and transport of the fuels, and here the BLM is assuming simple equivalency for oil and gas related LCA emissions. The downstream emissions for the well count method are calculated in accordance with the methods disclosed in section 6.0 of the AR.

Estimated Downstream Life-of-Project Emissions Range for Proposed Parcels (MM tonnes)

Method – Range	Scale Parameter	CO_2	CH_4	N_2O	CO_2e
Well Count - Low	13 Wells	2.014	2.76E-02	2.68E-03	2.020
Well Count - High	84 Wells	13.583	1.86E-01	1.81E-02	13.622
Lease Acre - Low	17,643.44 Acres	5.906	5.60E-02	5.45E-03	5.918

Lease Acre - High	33,977.73 Acres	11.380	1.08E-01	1.05E-02	11.404

For each year, table 6-1 in the AR provides estimates of downstream GHG emissions from federal oil and gas production. Emissions are reported for both Colorado and cumulative federal scopes, as well as for the nation as a whole. Comparing the maximum 30-year emissions outlined above to the single year disclosed in the AR, shows that the potential lifetime lease parcel emissions would be approximately 35% of the Colorado 2019 CO2e value. Dividing out the 30-year emissions to produce an annual value more akin to the rates described in the AR, the same comparison shows the maximum potential annual lease parcel emissions would be approximately 1.1% of the 2019 Colorado CO2e value. Comparing the annualized lease sale emissions to cumulative federal and nationwide oil and gas emissions shows that the lease parcel estimates would be approximately 0.071% and 0.011% of those values, respectively. Section 6 of the AR provides additional details on fossil fuel emissions projections and their relative contributions to climate change impacts.

Significant shifts in petroleum market dynamics (supply, demand, etc.), changes or advancements in development and recovery technologies, newly discovered resources and plays, or political influences (tax or regulatory incentives) that would significantly affect development rates in Colorado are not presently foreseeable. Continued field development, operation of well site equipment, and associated vehicle traffic would result in minor cumulative contributions to atmospheric GHGs. Natural gas and condensate produced from oil and gas development would be refined to produce a wide range of fuel products for consumer or commercial use. The combustion of these fuels would generate GHGs, which may be controlled through GHG control regulations (efficiency or emissions standards) or air permit requirements.

Other industrial operations in the area would also contribute to GHG emissions through the use of carbon fuels (liquefied petroleum gas, oil, and diesel), and through use of electricity produced using carbon fuels. Other anthropogenic activities, such as residential wood and open burning, as well as biogenic sources, also contribute GHGs to the atmosphere. These would be intermittent and more dispersed than the emissions from future oil and gas development projects that could occur on the subject lease parcels.

On a global scale, the GHG emission contribution of any single geographic subunit (such as a BLM field or state office) or source (such as federal minerals) on a subnational scale is dwarfed by the large number of comparable national and subnational contributors. The relative contribution of GHG emissions from production and consumption of federal minerals will vary depending on contemporaneous changes in other sources of GHG emissions. A single subnational contributor, such as a BLM field office, is very unlikely to influence global cumulative emissions. Nevertheless, each source contributes, on a relative basis, to global emissions and long-term climate impacts.

Potential Future Mitigation:

Based on the project-specific emissions inventory and modeling considered in BLM's review of future APDs, future oil and gas projects involving the proposed lease parcels may be subject to changes in project design and schedule as needed to protect air resources and AQRVs. Examples of changes to the project design and schedule include using equipment with lower emissions rates, limiting the well development rate in a general area (number of drilling rigs and/or completion operations at a given time), adjusting the well development schedule to specific seasons, and altering concurrent well development in a general area (e.g., simultaneous well drilling and completion at one location or multiple proximate locations). In general, project proposals incorporate specific design features, such as closed-loop drilling and green completions, to mitigate impacts.

In May 2019, the State of Colorado enacted HB 19-1261, which sets statewide GHG emission reduction goals (year 2025 GHG emissions are to be 26% lower than the year 2005 level, and year 2050 GHG emissions are to be a maximum of 10% of year 2005 level). The statute directs the Colorado Air Quality Control Commission to promulgate regulations to achieve these goals. Such reductions, if achieved, would change the cumulative impacts of emissions resulting from BLM decisions. The BLM will evaluate HB-19-1261 rules when they are available.

The BLM will continue to require that operators follow best management practices and control or offset GHG emissions by using feasible techniques such as minimizing vegetation clearing, maximizing successful interim reclamation, reducing truck idling, and improving equipment where fugitive emissions could leak (consistent with state and federal requirements).

Chapter 4 – Coordination and Consultation

4.1 Persons/Agencies Consulted

- Colorado Parks and Wildlife
- Colorado Department of Natural Resources
- Colorado State Historic Preservation Office
- Las Animas County
- Weld County
- National Park Service
- U.S. Bureau of Reclamation
- U.S. Forest Service
- Fish and Wildlife Service

4.2 Native American Tribes Consulted

Apache Tribe of Oklahoma, Cheyenne and Arapaho Tribes of Oklahoma, Cheyenne River Sioux Tribe, Comanche Nation of Oklahoma, Crow Creek Sioux, Eastern Shoshone, Jicarilla Apache Nation, Kiowa Tribe of Oklahoma, Northern Arapaho Tribe, Northern Cheyenne Tribe, Northern Ute Tribe, Oglala Sioux Tribe, Pawnee Tribe, Rosebud Sioux Tribe, Southern Ute Tribe, Standing Rock Lakota Tribe, and the Ute Mountain Ute Tribe.

4.3 Surface-owner Coordination

A letter was sent to surface owners of split estate proposed lease parcels.

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Daniel Pike	Geologist/Natural Resource Specialist	Hydrology/Water Quality, Geology & Minerals
Amy Stillings	Economist	Socioeconomics, Environmental Justice
Melissa Smeins	Geologist	Solid Minerals, Paleontology, Hazardous Waste

Name	Title	Resource
Matt Rustand	Wildlife Biologist	Migratory Birds, Special Status Species, Terrestrial Wildlife
Aaron Richter	Fishery Biologist	Aquatic Wildlife, Wetlands and Riparian, Invasive Species Management and Upland Vegetation, Prime and Unique Farmlands
Monica Weimer	Archaeologist	Cultural Resources, Native American Concerns
Linda Skinner	Recreation Planner	Visual Resources, Areas of Critical Environmental Concern, Lands with Wilderness Characteristics, Wilderness Study Areas, Wild and Scenic Rivers, Scenic Trails

Chapter 5 – References

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Attachment A- All Proposed Action Parcels with Stipulations for Lease

The Bureau of Land Management (BLM) Royal Gorge Field office is analyzing twenty-five parcels containing 33,977.730 acres in the State of Colorado for oil and gas leasing.

THE FOLLOWING ACQUIRED LANDS ARE SUBJECT TO FILINGS IN THE MANNER SPECIFIED IN THE APPLICABLE PORTIONS OF THE REGULATIONS IN 43 CFR, SUBPART 3120.

CO-2020-12-0058 Split Estate
CO, Royal Gorge Field Office, Bureau of Land Management, ACQ
T. 7 N., R. 60 W., 6TH PM
Sec. 10 E2.
Weld County
320 Acres
50.00 % US Mineral Interest
EOI# CO00016210

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate or other special status plant or animal.

All lands are subject to Exhibit CO-39 to protect cultural resources.

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis.

CO-2020-12-0092 Split Estate
CO, Royal Gorge Field Office, Bureau of Land Management, ACQ
T. 34 S., R. 60 W., 6TH PM
Sec. 9 W2NE, SENE, SE.
Las Animas County
280 Acres
50.00 % US Mineral Interest
EOI# CO00016429

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate or other special status plant or animal.

All lands are subject to Exhibit CO-39 to protect cultural resources.

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis.

THE FOLLOWING PUBLIC DOMAIN LANDS ARE SUBJECT TO FILINGS IN THE MANNER SPECIFIED IN THE APPLICABLE PORTIONS OF THE REGULATIONS IN 43 CFR, SUBPART 3120.

CO-2020-12-6160 Split Estate

CO, Royal Gorge Field Office, Bureau of Land Management, PD

T. 30 S., R. 54 W., 6TH PM

Sec. 1 S2NW,SW;
Sec. 2 LOTS 3,4;
Sec. 2 SENE,SWNW,E2SE;
Sec. 11 E2NE,SWNW,S2;
Sec. 12 E2,NENW,W2NW,SW.

Las Animas County

1522.87 Acres

EOI# CO00016380

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate or other special status plant or animal.

All lands are subject to Exhibit CO-39 to protect cultural resources.

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis.

CO-2020-12-6161 Split Estate

CO, Royal Gorge Field Office, Bureau of Land Management, PD

T. 30 S., R. 54 W., 6TH PM

Sec. 3 LOTS 1-4;
Sec. 3 S2N2,S2;
Sec. 4 LOTS 1-4;
Sec. 4 S2N2,S2;
Sec. 9 N2,N2S2;
Sec. 10 ALL.

Las Animas County

2406.5 Acres

EOI# CO00016380

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate or other special status plant or animal.

All lands are subject to Exhibit CO-39 to protect cultural resources.

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis.

CO-2020-12-6159 Split Estate

CO, Royal Gorge Field Office, Bureau of Land Management, PD

T. 30 S., R. 54 W., 6TH PM

Sec. 5 LOTS 4;
Sec. 5 NESW,S2SW,W2SE;
Sec. 6 LOTS 3,8,11;
Sec. 6 SWNE,NESW,NWSE,SESE;
Sec. 7 LOTS 2,3,5-8;
Sec. 7 NENE,SENW,E2SW,NESE,S2SE;
Sec. 8 SENW,NWSW.

Las Animas County

1153.9 Acres

EOI# CO00016380

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate or other special status plant or animal.

All lands are subject to Exhibit CO-39 to protect cultural resources.

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis.

CO-2020-12-6163 Split Estate

CO, Royal Gorge Field Office, Bureau of Land Management, PD

T. 30 S., R. 54 W., 6TH PM

Sec. 13 NENE,W2NE,NW;
Sec. 14 ALL;
Sec. 23 N2,E2SW,SWSW,N2SE,SESW;
Sec. 24 NWNE,S2NE,NW,N2SW,SESW,NWSE.

Las Animas County

1920 Acres

EOI# CO00016380

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate or other special status plant or animal.

All lands are subject to Exhibit CO-39 to protect cultural resources.

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis.

CO-2020-12-6162 Split Estate

CO, Royal Gorge Field Office, Bureau of Land Management, PD

T. 30 S., R. 54 W., 6TH PM

Sec. 15 ALL;
Sec. 17 E2,SWNW,SW;
Sec. 20 NE,NESE,W2SE;
Sec. 21 E2,N2NW,SENW,E2SW;
Sec. 22 N2,W2SW.

Las Animas County

2360 Acres

EOI# CO00016380

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate or other special status plant or animal.

All lands are subject to Exhibit CO-39 to protect cultural resources.

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis.

CO-2020-12-0066 Split Estate

CO, Royal Gorge Field Office, Bureau of Land Management, PD

T. 30 S., R. 54 W., 6TH PM

Sec. 18 LOTS 1-3,5-8;
Sec. 18 N2NE,NENW,SESW,E2SE;
Sec. 19 LOTS 1-7;
Sec. 19 NENE,E2NW,NESW,SESE;
Sec. 30 E2NE,NENW,N2SE;
Sec. 31 LOTS 3.

Las Animas County

1299.76 Acres

EOI# CO00016380

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate or other special status plant or animal.

All lands are subject to Exhibit CO-39 to protect cultural resources.

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis.

CO-2020-12-6164 Split Estate

CO, Royal Gorge Field Office, Bureau of Land Management, PD

T. 30 S., R. 54 W., 6TH PM

Sec. 25 S2NE,SESW,SE;
Sec. 26 SWNE,S2NW,SW,W2SE;

Sec. 27 N2,SESW;
Sec. 28 N2,N2S2;
Sec. 35 N2NW,SENW.
Las Animas County
1600 Acres
EOI# CO00016380

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate or other special status plant or animal.

All lands are subject to Exhibit CO-39 to protect cultural resources.

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis.

CO-2020-12-6166 Split Estate
CO, Royal Gorge Field Office, Bureau of Land Management, PD
T. 34 S., R. 56 W., 6TH PM
Sec. 15 E2NE, S2SW, NESE;
Sec. 21 N2NW, E2SE;
Sec. 22 S2NE, W2W2, SE;
Sec. 27 NENE, W2NW, SENW;
Sec. 28 N2NW, SENW;
Sec. 34 W2NE, SENE, N2NW, SENW.
Las Animas County
1280 Acres
EOI# CO00016392

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate or other special status plant or animal.

All lands are subject to Exhibit CO-39 to protect cultural resources.

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis.

CO-2020-12-0075 Split Estate
CO, Royal Gorge Field Office, Bureau of Land Management, PD
T. 34 S., R. 56 W., 6TH PM
Sec. 18 LOTS 1, 2;
Sec. 18 SENE, E2NW, NESW, N2SE;
Sec. 20 N2NW;
Sec. 29 S2NW, NESE;
Sec. 30 LOTS 2, 3;
Sec. 30 S2NE, SENW, NESW.
Las Animas County

746.49 Acres
EOI# CO00016392

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate or other special status plant or animal.

All lands are subject to Exhibit CO-39 to protect cultural resources.

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis.

CO-2020-12-6167 Split Estate
CO, Royal Gorge Field Office, Bureau of Land Management, PD
T. 35 S., R. 56 W., 6TH PM
Sec. 2 S2S2,NWSE;
Sec. 4 LOTS 4;
Sec. 4 SWNW,W2SW;
Sec. 5 SENW,NESE;
Sec. 6 LOTS 3,4;
Sec. 8 SWSE;
Sec. 9 N2N2;
Sec. 10 NENE,N2NW,SWNW,NWSW;
Sec. 11 N2NE,NENW,SW,W2SE,SESE;
Sec. 14 LOTS 1-4;
Sec. 17 LOTS 1-4;
Sec. 18 LOTS 1-3.
Las Animas County
1874.41 Acres
EOI# CO00016383

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate or other special status plant or animal.

All lands are subject to Exhibit CO-39 to protect cultural resources.

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis.

CO-2020-12-6165 Split Estate
CO, Royal Gorge Field Office, Bureau of Land Management, PD
T. 34 S., R. 57 W., 6TH PM
Sec. 13 SENE,SWNW,NWSW;
Sec. 14 SENE,NESE;
Sec. 23 NENE;
Sec. 25 S2SW;

Sec. 26 SE;
Sec. 35 E2.
Las Animas County
800 Acres
EOI# CO00016383

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate or other special status plant or animal.

All lands are subject to Exhibit CO-39 to protect cultural resources.

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis.

CO-2020-12-0074 Split Estate
CO, Royal Gorge Field Office, Bureau of Land Management, PD
T. 32 S., R. 60 W., 6TH PM
Sec. 1 LOTS 1-4;
Sec. 1 S2N2,S2;
Sec. 2 LOTS 1-4;
Sec. 2 S2N2,S2;
Sec. 3 LOTS 1,2;
Sec. 3 S2NE,SWNW,S2;
Sec. 4 LOTS 1-4;
Sec. 4 S2NE,SENW,E2SW,SWSW,SE.
Las Animas County
2441.22 Acres
EOI# CO00016384

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate or other special status plant or animal.

All lands are subject to Exhibit CO-39 to protect cultural resources.

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis.

CO-2020-12-6168 Split Estate
CO, Royal Gorge Field Office, Bureau of Land Management, PD
T. 32 S., R. 60 W., 6TH PM
Sec. 5 LOTS 1-4;
Sec. 5 S2NW,S2;
Sec. 6 LOTS 1,2;
Sec. 6 S2NE;
Sec. 7 LOTS 2-4;
Sec. 8 N2;

Sec. 9 N2NE,SWNE,W2;
Sec. 10 E2,E2W2,NWNW.
Las Animas County
2226.88 Acres
EOI# CO00016384

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate or other special status plant or animal.

All lands are subject to Exhibit CO-39 to protect cultural resources.

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis.

CO-2020-12-0076 Split Estate
CO, Royal Gorge Field Office, Bureau of Land Management, PD
T. 32 S., R. 60 W., 6TH PM
Sec. 11 N2,N2SW,SWSW,SE;
Sec. 12 NE;
Sec. 13 ALL SUBDIVISIONS;
Sec. 14 E2NE,W2NW,SENW;
Sec. 15 ALL SUBDIVISIONS.
Las Animas County
2240 Acres
EOI# CO00016384

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate or other special status plant or animal.

All lands are subject to Exhibit CO-39 to protect cultural resources.

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis.

CO-2020-12-0077 Split Estate
CO, Royal Gorge Field Office, Bureau of Land Management, PD
T. 32 S., R. 60 W., 6TH PM
Sec. 17 S2;
Sec. 18 LOTS 3,4;
Sec. 18 NENE,E2SW,SE;
Sec. 19 LOTS 3,4;
Sec. 19 NENE;
Sec. 20 SESW,E2SE,SWSE;
Sec. 21 ALL SUBDIVISIONS;
Sec. 22 W2E2,W2.
Las Animas County

2157.34 Acres
EOI# CO00016384

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate or other special status plant or animal.

All lands are subject to Exhibit CO-39 to protect cultural resources.

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis.

CO-2020-12-0078 Split Estate
CO, Royal Gorge Field Office, Bureau of Land Management, PD
T. 32 S., R. 60 W., 6TH PM
Sec. 23 E2NE,NESE;
Sec. 27 W2NE,NW;
Sec. 28 E2NE,W2NW,NWSW;
Sec. 29 E2NE,N2SE;
Sec. 32 W2SE,SESE;
Sec. 33 SWNE,SESE;
Sec. 34 ALL SUBDIVISIONS;
Sec. 35 SW,S2SE.
Las Animas County
1800 Acres
EOI# CO00016384

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate or other special status plant or animal.

All lands are subject to Exhibit CO-39 to protect cultural resources.

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis.

CO-2020-12-0079 Split Estate
CO, Royal Gorge Field Office, Bureau of Land Management, PD
T. 33 S., R. 60 W., 6TH PM
Sec. 7 LOTS 2-4;
Sec. 7 SENW,E2SW,N2SE,SWSE;
Sec. 17 S2SW,SE;
Sec. 18 LOTS 1-3;
Sec. 18 E2NW;
Sec. 20 ALL SUBDIVISIONS;
Sec. 21 N2,SW,W2SE;
Sec. 28 W2NE,NWSE;

Sec. 29 NW;
Sec. 35 NESW,S2SW,W2SE,SESE.
Las Animas County
2517.93 Acres
EOI# CO00016416

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate or other special status plant or animal.

All lands are subject to Exhibit CO-39 to protect cultural resources.

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis.

CO-2020-12-0085 Split Estate
CO, Royal Gorge Field Office, Bureau of Land Management, PD
T. 33 S., R. 60 W., 6TH PM
Sec. 11 E2NE, SE;
Sec. 12 SWNW, SW;
Sec. 13 NW;
Sec. 14 NE, N2SE.
Las Animas County
840 Acres
EOI# CO00016429

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate or other special status plant or animal.

All lands are subject to Exhibit CO-39 to protect cultural resources.

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis.

CO-2020-12-0088 Split Estate
CO, Royal Gorge Field Office, Bureau of Land Management, PD
T. 33 S., R. 60 W., 6TH PM
Sec. 34 SWSW.
T. 34 S., R. 60 W., 6TH PM
Sec. 3 LOTS 4;
Sec. 3 SWNW;
Sec. 4 S2N2, S2.
Las Animas County
599.49 Acres
EOI# CO00016429

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate or other special status plant or animal.

All lands are subject to Exhibit CO-39 to protect cultural resources.

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis.

CO-2020-12-0080 Split Estate

CO, Royal Gorge Field Office, Bureau of Land Management, PD

T. 34 S., R. 60 W., 6TH PM

Sec. 2 LOTS 1-4;
Sec. 2 S2N2,N2S2,SESW,S2SE;
Sec. 3 LOTS 1,2;
Sec. 11 NENE;
Sec. 12 NWNW.

Las Animas County

760.33 Acres

EOI# CO00016416

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate or other special status plant or animal.

All lands are subject to Exhibit CO-39 to protect cultural resources.

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis.

CO-2020-12-0082 Split Estate

CO, Royal Gorge Field Office, Bureau of Land Management, PD

T. 34 S., R. 60 W., 6TH PM

Sec. 10 SESW;
Sec. 15 N2NW.

Las Animas County

120 Acres

EOI# CO00016429

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate or other special status plant or animal.

All lands are subject to Exhibit CO-39 to protect cultural resources.

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis.

CO-2020-12-0084 Split Estate

CO, Royal Gorge Field Office, Bureau of Land Management, PD

T. 34 S., R. 60 W., 6TH PM

Sec. 23 SW EXCLD RR ROW C0122138;
Sec. 26 N2NW, S2SW;
Sec. 27 E2;
Sec. 35 NWNW.

Las Animas County

670.61 Acres

EOI# CO00016429

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate or other special status plant or animal.

All lands are subject to Exhibit CO-39 to protect cultural resources.

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis.

CO-2020-12-0081 Split Estate

CO, Royal Gorge Field Office, Bureau of Land Management, PD

T. 33 S., R. 61 W., 6TH PM

Sec. 12 SWSE.

Las Animas County

40 Acres

EOI# CO00016416

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate or other special status plant or animal.

All lands are subject to Exhibit CO-39 to protect cultural resources.

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis.

Attachment B - Recommended Parcels for Deferral

No parcels have been recommended for Deferral for the December Sale

Attachment C- Preferred Alternative- Parcels with Stipulations for Lease

The Bureau of Land Management (BLM) Royal Gorge Field office is analyzing twenty-five parcels containing 33,977.730 acres in the State of Colorado for oil and gas leasing.

THE FOLLOWING ACQUIRED LANDS ARE SUBJECT TO FILINGS IN THE MANNER SPECIFIED IN THE APPLICABLE PORTIONS OF THE REGULATIONS IN 43 CFR, SUBPART 3120.

CO-2020-12-0058 Split Estate
CO, Royal Gorge Field Office, Bureau of Land Management, ACQ
T. 7 N., R. 60 W., 6TH PM
Sec. 10 E2.
Weld County
320 Acres
50.00 % US Mineral Interest
EOI# CO00016210

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-09 to protect big game winter habitat.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate or other special status plant or animal.

All lands are subject to Exhibit CO-39 to protect cultural resources.

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis.

CO-2020-12-0092 Split Estate
CO, Royal Gorge Field Office, Bureau of Land Management, ACQ
T. 34 S., R. 60 W., 6TH PM
Sec. 9 W2NE, SENE, SE.
Las Animas County
280 Acres
50.00 % US Mineral Interest

EOI# CO00016429

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate or other special status plant or animal.

All lands are subject to Exhibit CO-39 to protect cultural resources.

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis.

THE FOLLOWING PUBLIC DOMAIN LANDS ARE SUBJECT TO FILINGS IN THE MANNER SPECIFIED IN THE APPLICABLE PORTIONS OF THE REGULATIONS IN 43 CFR, SUBPART 3120.

CO-2020-12-6160 Split Estate
CO, Royal Gorge Field Office, Bureau of Land Management, PD
T. 30 S., R. 54 W., 6TH PM
Sec. 1 S2NW,SW;
Sec. 2 LOTS 3,4;
Sec. 2 SENE,SWNW,E2SE;
Sec. 11 E2NE,SWNW,S2;
Sec. 12 E2,NENW,W2NW,SW.
Las Animas County
1522.87 Acres
EOI# CO00016380

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-28 to protect perennial water impoundments and streams, and/or riparian/wetland vegetation.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate or other special status plant or animal.

All lands are subject to Exhibit CO-39 to protect cultural resources.

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis.

CO-2020-12-6161 Split Estate
CO, Royal Gorge Field Office, Bureau of Land Management, PD
T. 30 S., R. 54 W., 6TH PM
Sec. 3 LOTS 1-4;
Sec. 3 S2N2,S2;
Sec. 4 LOTS 1-4;
Sec. 4 S2N2,S2;
Sec. 9 N2,N2S2;
Sec. 10 ALL.
Las Animas County
2406.5 Acres
EOI# CO00016380

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-28 to protect perennial water impoundments and streams, and/or riparian/wetland vegetation.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate or other special status plant or animal.

All lands are subject to Exhibit CO-39 to protect cultural resources.

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis.

CO-2020-12-6159 Split Estate
CO, Royal Gorge Field Office, Bureau of Land Management, PD
T. 30 S., R. 54 W., 6TH PM
Sec. 5 LOTS 4;
Sec. 5 NESW,S2SW,W2SE;
Sec. 6 LOTS 3,8,11;
Sec. 6 SWNE,NESW,NWSE,SESE;
Sec. 7 LOTS 2,3,5-8;
Sec. 7 NENE,SENW,E2SW,NESE,S2SE;
Sec. 8 SENW,NWSW.

Las Animas County
1153.9 Acres
EOI# CO00016380

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-28 to protect perennial water impoundments and streams, and/or riparian/wetland vegetation.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate or other special status plant or animal.

All lands are subject to Exhibit CO-39 to protect cultural resources.

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis.

CO-2020-12-6163 Split Estate

CO, Royal Gorge Field Office, Bureau of Land Management, PD
T. 30 S., R. 54 W., 6TH PM
Sec. 13 NENE,W2NE,NW;
Sec. 14 ALL;
Sec. 23 N2,E2SW,SWSW,N2SE,SESW;
Sec. 24 NWNE,S2NE,NW,N2SW,SESW,NWSE.
Las Animas County
1920 Acres
EOI# CO00016380

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate or other special status plant or animal.

All lands are subject to Exhibit CO-39 to protect cultural resources.

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis.

CO-2020-12-6162 Split Estate

CO, Royal Gorge Field Office, Bureau of Land Management, PD

T. 30 S., R. 54 W., 6TH PM

Sec. 15 ALL;
Sec. 17 E2,SWNW,SW;
Sec. 20 NE,NESE,W2SE;
Sec. 21 E2,N2NW,SENW,E2SW;
Sec. 22 N2,W2SW.

Las Animas County

2360 Acres

EOI# CO00016380

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-28 to protect perennial water impoundments and streams, and/or riparian/wetland vegetation.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate or other special status plant or animal.

All lands are subject to Exhibit CO-39 to protect cultural resources.

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis.

CO-2020-12-0066 Split Estate

CO, Royal Gorge Field Office, Bureau of Land Management, PD

T. 30 S., R. 54 W., 6TH PM

Sec. 18 LOTS 1-3,5-8;
Sec. 18 N2NE,NENW,SESW,E2SE;
Sec. 19 LOTS 1-7;
Sec. 19 NENE,E2NW,NESW,SESE;
Sec. 30 E2NE,NENW,N2SE;
Sec. 31 LOTS 3.

Las Animas County

1299.76 Acres

EOI# CO00016380

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-28 to protect perennial water impoundments and streams, and/or riparian/wetland vegetation.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate or other special status plant or animal.

All lands are subject to Exhibit CO-39 to protect cultural resources.

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis.

CO-2020-12-6164 Split Estate

CO, Royal Gorge Field Office, Bureau of Land Management, PD

T. 30 S., R. 54 W., 6TH PM

Sec. 25 S2NE,SESW,SE;
Sec. 26 SWNE,S2NW,SW,W2SE;
Sec. 27 N2,SESW;
Sec. 28 N2,N2S2;
Sec. 35 N2NW,SENW.

Las Animas County

1600 Acres

EOI# CO00016380

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-28 to protect perennial water impoundments and streams, and/or riparian/wetland vegetation.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate or other special status plant or animal.

All lands are subject to Exhibit CO-39 to protect cultural resources.

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis.

CO-2020-12-6166 Split Estate
CO, Royal Gorge Field Office, Bureau of Land Management, PD
T. 34 S., R. 56 W., 6TH PM
Sec. 15 E2NE, S2SW, NESE;
Sec. 21 N2NW, E2SE;
Sec. 22 S2NE, W2W2, SE;
Sec. 27 NENE, W2NW, SENW;
Sec. 28 N2NW, SENW;
Sec. 34 W2NE, SENE, N2NW, SENW.
Las Animas County
1280 Acres
EOI# CO00016392

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate or other special status plant or animal.

All lands are subject to Exhibit CO-39 to protect cultural resources.

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis.

CO-2020-12-0075 Split Estate
CO, Royal Gorge Field Office, Bureau of Land Management, PD
T. 34 S., R. 56 W., 6TH PM
Sec. 18 LOTS 1, 2;
Sec. 18 SENE, E2NW, NESW, N2SE;
Sec. 20 N2NW;
Sec. 29 S2NW, NESE;
Sec. 30 LOTS 2, 3;
Sec. 30 S2NE, SENW, NESW.
Las Animas County
746.49 Acres
EOI# CO00016392

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-28 to protect perennial water impoundments and streams, and/or riparian/wetland vegetation.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate or other special status plant or animal.

All lands are subject to Exhibit CO-39 to protect cultural resources.

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis.

CO-2020-12-6167 Split Estate

CO, Royal Gorge Field Office, Bureau of Land Management, PD

T. 35 S., R. 56 W., 6TH PM

Sec. 2 S2S2,NWSE;
Sec. 4 LOTS 4;
Sec. 4 SWNW,W2SW;
Sec. 5 SENW,NESE;
Sec. 6 LOTS 3,4;
Sec. 8 SWSE;
Sec. 9 N2N2;
Sec. 10 NENE,N2NW,SWNW,NWSW;
Sec. 11 N2NE,NENW,SW,W2SE,SESE;
Sec. 14 LOTS 1-4;
Sec. 17 LOTS 1-4;
Sec. 18 LOTS 1-3.

Las Animas County

1874.41 Acres

EOI# CO00016383

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-28 to protect perennial water impoundments and streams, and/or riparian/wetland vegetation.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate or other special status plant or animal.

All lands are subject to Exhibit CO-39 to protect cultural resources.

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis.

CO-2020-12-6165 Split Estate

CO, Royal Gorge Field Office, Bureau of Land Management, PD

T. 34 S., R. 57 W., 6TH PM

Sec. 13 SENE,SWNW,NWSW;
Sec. 14 SENE,NESE;
Sec. 23 NENE;
Sec. 25 S2SW;
Sec. 26 SE;
Sec. 35 E2.

Las Animas County

800 Acres

EOI# CO00016383

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-28 to protect perennial water impoundments and streams, and/or riparian/wetland vegetation.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate or other special status plant or animal.

All lands are subject to Exhibit CO-39 to protect cultural resources.

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis.

CO-2020-12-0074 Split Estate

CO, Royal Gorge Field Office, Bureau of Land Management, PD

T. 32 S., R. 60 W., 6TH PM

Sec. 1 LOTS 1-4;
Sec. 1 S2N2,S2;
Sec. 2 LOTS 1-4;
Sec. 2 S2N2,S2;
Sec. 3 LOTS 1,2;
Sec. 3 S2NE,SWNW,S2;
Sec. 4 LOTS 1-4;
Sec. 4 S2NE,SENW,E2SW,SWSW,SE.
Las Animas County
2441.22 Acres
EOI# CO00016384

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-28 to protect perennial water impoundments and streams, and/or riparian/wetland vegetation.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate or other special status plant or animal.

All lands are subject to Exhibit CO-39 to protect cultural resources.

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis.

CO-2020-12-6168 Split Estate
CO, Royal Gorge Field Office, Bureau of Land Management, PD
T. 32 S., R. 60 W., 6TH PM
Sec. 5 LOTS 1-4;
Sec. 5 S2NW,S2;
Sec. 6 LOTS 1,2;
Sec. 6 S2NE;
Sec. 7 LOTS 2-4;
Sec. 8 N2;
Sec. 9 N2NE,SWNE,W2;
Sec. 10 E2,E2W2,NWNW.
Las Animas County
2226.88 Acres
EOI# CO00016384

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-28 to protect perennial water impoundments and streams, and/or riparian/wetland vegetation.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate or other special status plant or animal.

All lands are subject to Exhibit CO-39 to protect cultural resources.

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis.

CO-2020-12-0076 Split Estate

CO, Royal Gorge Field Office, Bureau of Land Management, PD

T. 32 S., R. 60 W., 6TH PM

Sec. 11 N2,N2SW,SWSW,SE;
Sec. 12 NE;
Sec. 13 ALL SUBDIVISIONS;
Sec. 14 E2NE,W2NW,SENW;
Sec. 15 ALL SUBDIVISIONS.

Las Animas County

2240 Acres

EOI# CO00016384

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate or other special status plant or animal.

All lands are subject to Exhibit CO-39 to protect cultural resources.

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis.

CO-2020-12-0077 Split Estate

CO, Royal Gorge Field Office, Bureau of Land Management, PD

T. 32 S., R. 60 W., 6TH PM

Sec. 17 S2;
Sec. 18 LOTS 3,4;
Sec. 18 NENE,E2SW,SE;
Sec. 19 LOTS 3,4;
Sec. 19 NENE;
Sec. 20 SESW,E2SE,SWSE;
Sec. 21 ALL SUBDIVISIONS;
Sec. 22 W2E2,W2.

Las Animas County

2157.34 Acres

EOI# CO00016384

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate or other special status plant or animal.

All lands are subject to Exhibit CO-39 to protect cultural resources.

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis.

CO-2020-12-0078 Split Estate

CO, Royal Gorge Field Office, Bureau of Land Management, PD

T. 32 S., R. 60 W., 6TH PM

Sec. 23 E2NE,NESE;
Sec. 27 W2NE,NW;
Sec. 28 E2NE,W2NW,NWSW;
Sec. 29 E2NE,N2SE;
Sec. 32 W2SE,SESE;
Sec. 33 SWNE,SESE;
Sec. 34 ALL SUBDIVISIONS;
Sec. 35 SW,S2SE.

Las Animas County

1800 Acres

EOI# CO00016384

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate or other special status plant or animal.

All lands are subject to Exhibit CO-39 to protect cultural resources.

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis.

CO-2020-12-0079 Split Estate

CO, Royal Gorge Field Office, Bureau of Land Management, PD

T. 33 S., R. 60 W., 6TH PM

Sec. 7 LOTS 2-4;
Sec. 7 SENW,E2SW,N2SE,SWSE;
Sec. 17 S2SW,SE;
Sec. 18 LOTS 1-3;
Sec. 18 E2NW;
Sec. 20 ALL SUBDIVISIONS;
Sec. 21 N2,SW,W2SE;
Sec. 28 W2NE,NWSE;
Sec. 29 NW;
Sec. 35 NESW,S2SW,W2SE,SESE.

Las Animas County

2517.93 Acres

EOI# CO00016416

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate or other special status plant or animal.

All lands are subject to Exhibit CO-39 to protect cultural resources.

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis.

CO-2020-12-0085 Split Estate

CO, Royal Gorge Field Office, Bureau of Land Management, PD

T. 33 S., R. 60 W., 6TH PM

Sec. 11 E2NE, SE;
Sec. 12 SWNW, SW;
Sec. 13 NW;
Sec. 14 NE, N2SE.

Las Animas County

840 Acres

EOI# CO00016429

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-28 to protect perennial water impoundments and streams, and/or riparian/wetland vegetation.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate or other special status plant or animal.

All lands are subject to Exhibit CO-39 to protect cultural resources.

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis.

CO-2020-12-0088 Split Estate

CO, Royal Gorge Field Office, Bureau of Land Management, PD

T. 33 S., R. 60 W., 6TH PM

Sec. 34 SWSW.

T. 34 S., R. 60 W., 6TH PM

Sec. 3 LOTS 4;
Sec. 3 SWNW;
Sec. 4 S2N2, S2.

Las Animas County

599.49 Acres

EOI# CO00016429

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-28 to protect perennial water impoundments and streams, and/or riparian/wetland vegetation.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate or other special status plant or animal.

All lands are subject to Exhibit CO-39 to protect cultural resources.

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis.

CO-2020-12-0080 Split Estate

CO, Royal Gorge Field Office, Bureau of Land Management, PD

T. 34 S., R. 60 W., 6TH PM

Sec. 2 LOTS 1-4;
Sec. 2 S2N2,N2S2,SESW,S2SE;
Sec. 3 LOTS 1,2;
Sec. 11 NENE;
Sec. 12 NWNW.

Las Animas County

760.33 Acres

EOI# CO00016416

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate or other special status plant or animal.

All lands are subject to Exhibit CO-39 to protect cultural resources.

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis.

CO-2020-12-0082 Split Estate

CO, Royal Gorge Field Office, Bureau of Land Management, PD

T. 34 S., R. 60 W., 6TH PM

Sec. 10 SESW;
Sec. 15 N2NW.

Las Animas County
120 Acres
EOI# CO00016429

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate or other special status plant or animal.

All lands are subject to Exhibit CO-39 to protect cultural resources.

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis.

CO-2020-12-0084 Split Estate
CO, Royal Gorge Field Office, Bureau of Land Management, PD
T. 34 S., R. 60 W., 6TH PM
Sec. 23 SW EXCLD RR ROW C0122138;
Sec. 26 N2NW, S2SW;
Sec. 27 E2;
Sec. 35 NWNW.
Las Animas County
670.61 Acres
EOI# CO00016429

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate or other special status plant or animal.

All lands are subject to Exhibit CO-39 to protect cultural resources.

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis.

CO-2020-12-0081 Split Estate

CO, Royal Gorge Field Office, Bureau of Land Management, PD

T. 33 S., R. 61 W., 6TH PM

Sec. 12 SWSE.

Las Animas County

40 Acres

EOI# CO00016416

All lands are subject to Exhibit CO-03 to protect raptor nests.

All lands are subject to Exhibit CO-18 to protect raptor nesting and fledgling habitat.

All lands are subject to Exhibit CO-19 to protect ferruginous hawk nesting and fledgling habitat.

All lands are subject to Exhibit CO-34 to alert lessee of potential habitat for a threatened, endangered, candidate or other special status plant or animal.

All lands are subject to Exhibit CO-39 to protect cultural resources.

All lands are subject to Exhibit CO-56 to alert lessee of potential supplementary air analysis.

Attachment D - Stipulation Exhibits

EXHIBIT CO-03

Lease Number: <LEASE_NUMBER>

NO SURFACE OCCUPANCY STIPULATION

No surface occupancy or use is allowed on the lands described below (legal description or other description):

<LEGAL_DESCRIPTIONS>

For the purpose of:

To protect raptor nests within a one-eighth mile radius from the site.

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820.)

Exception Criteria:

An exception may be granted depending on current usage, or on the geographical relationship to topographic barriers and vegetation screening.

EXHIBIT CO-09

Lease Number: <LEASE_NUMBER>

TIMING LIMITATION STIPULATION

No surface use is allowed during the following time period(s). This stipulation does not apply to operation and maintenance of production facilities.

December 1 through April 30

On the lands described below:

<LEGAL_DESCRIPTIONS>

For the purpose of (reasons):

To protect big game (mule deer, elk, pronghorn antelope, and bighorn sheep) winter range, including crucial winter habitat and other definable winter range as mapped by the Colorado Division of Wildlife. This may apply to sundry notice that require an environmental analysis.

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of the stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820.)

Exception Criteria:

An exception may be granted under mild winter conditions for the last 60 days of the closure.

EXHIBIT CO-18

Lease Number: <LEASE_NUMBER>

TIMING LIMITATION STIPULATION

No surface use is allowed during the following time period(s). This stipulation does not apply to operation and maintenance of production facilities.

February 1 through August 15

On the lands described below:

<LEGAL_DESCRIPTIONS>

For the purpose of (reasons):

To protect raptor (this includes golden eagles, all accipiters, falcons [except the kestrels], all butteos, and owls) nesting and fledgling habitat during usage for one-quarter mile around the nest site.

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of the stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820.)

Exception Criteria:

Exceptions may be granted during years when the nest site is unoccupied, when occupancy ends by or after May 15, or once the young have fledged and dispersed from the nest.

EXHIBIT CO-19

Lease Number: <LEASE_NUMBER>

TIMING LIMITATION STIPULATION

No surface use is allowed during the following time period(s). This stipulation does not apply to operation and maintenance of production facilities.

February 1 through August 15

On the lands described below:

<LEGAL_DESCRIPTIONS>

For the purpose of (reasons):

To protect ferruginous hawk nesting and fledgling habitat during usage for a one-quarter mile buffer around the nest.

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of the stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820.)

Exception Criteria:

Exceptions may be granted during years when a nest site is unoccupied, when occupancy ends by or after May 15, or once the young have fledged and dispersed from the nest.

EXHIBIT CO-28

Lease Number: <LEASE_NUMBER>

CONTROLLED SURFACE USE STIPULATION

Surface occupancy or use is subject to the following special operating constraints.
On the lands described below:

<LEGAL_DESCRIPTIONS>

For the purpose of:

> To protect perennial water impoundments and streams, and/or riparian/wetland vegetation by moving oil and gas exploration and development beyond the riparian vegetation zone.

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820. See also Geothermal PEIS ROD section 2.3.3 at page 2-6.)

Exception Criteria:

Exceptions may be granted only if an on-site impact analysis shows no degradation of the resource values.

EXHIBIT CO-34

Lease Number: <LEASE_NUMBER>

ENDANGERED SPECIES ACT SECTION 7 CONSULTATION STIPULATION

The lease area may now or hereafter contain plants, animals, or their habitats determined to be threatened, endangered, or other special status species. The BLM may recommend modifications to exploration and development proposals to further its conservation and management objective to avoid BLM-approved activity that will contribute to a need to list such a species or their habitat. The BLM may require modifications to or disapprove proposed activity that is likely to result in jeopardy to the continued existence of a proposed or listed threatened or endangered species or result in the destruction or adverse modification of a designated or proposed critical habitat. The BLM will not approve any ground-disturbing activity that may affect any such species or critical habitat until it completes its obligations under applicable requirements of the Endangered Species Act as amended, 16 U.S.C. § 1531 et seq., including completion of any required procedure for conference or consultation.

EXHIBIT CO-39

Lease Number: <LEASE_NUMBER>

CONTROLLED SURFACE USE STIPULATION

This lease may be found to contain historic properties and/or resources protected under the National Historic Preservation Act (NHPA), American Indian Religious Freedom Act, Native American Graves Protection and Repatriation Act, E.O.13007, or other statutes and executive orders. The BLM will not approve any ground disturbing activities that may affect any such properties or resources until it completes its obligations under applicable requirements of the NHPA and other authorities. The BLM may require modification to exploration or development proposals to protect such properties or disapprove any activity that is likely to result in adverse effects that cannot be successfully avoided, minimized or mitigated.

Any changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820.)

EXHIBIT CO-56

Lease Number: <LEASE_NUMBER>

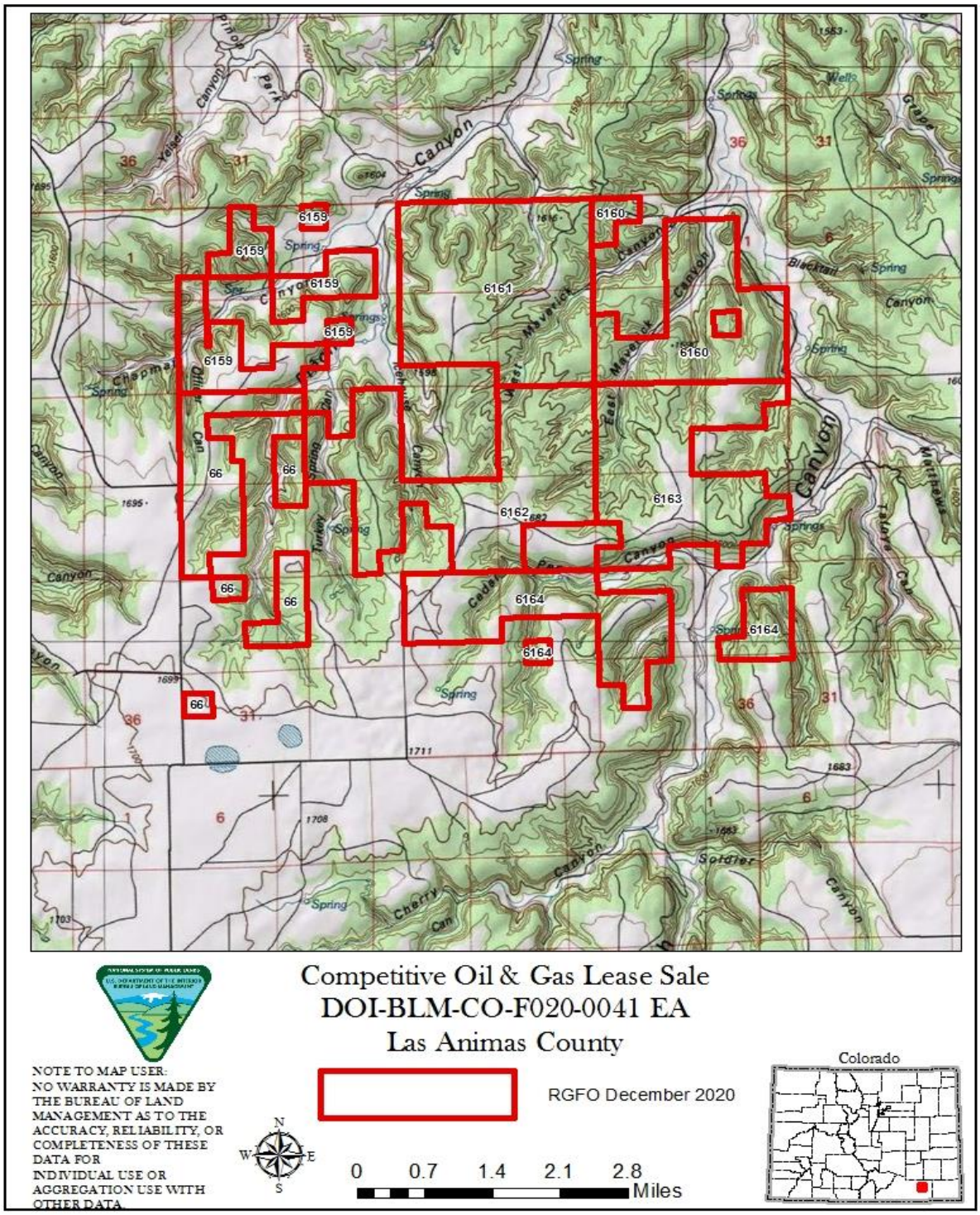
LEASE NOTICE

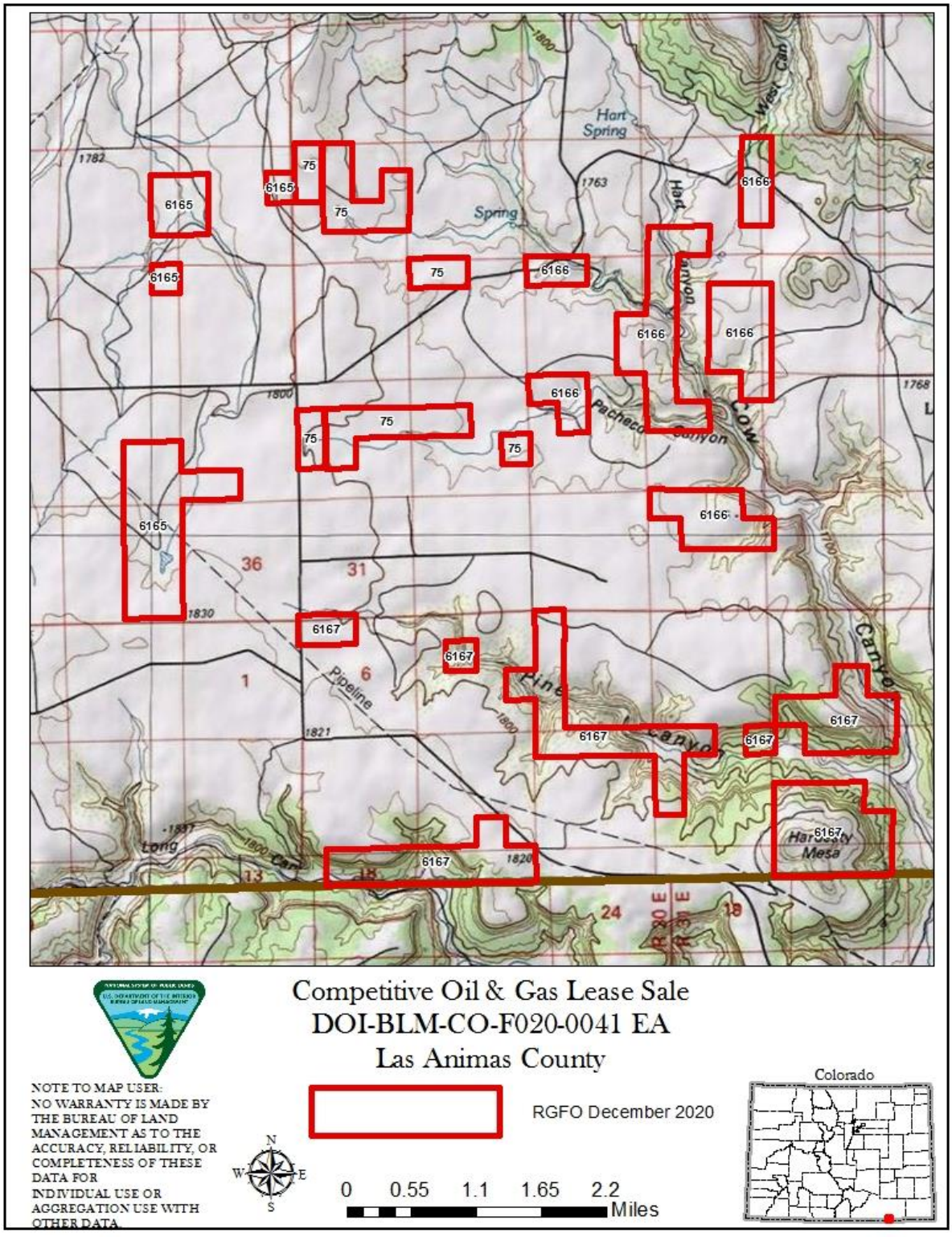
Due to potential air quality concerns, supplementary air quality analysis may be required for any proposed development of this lease. This may include preparing a comprehensive emissions inventory, performing air quality modeling, and initiating interagency consultation with affected land managers and air quality regulators to determine potential mitigation options for any predicted significant impacts from the proposed development. Potential mitigation may include limiting the time, place, and pace of any proposed development, as well as providing for the best air quality control technology and/or management practices necessary to achieve area-wide air resource protection objectives. Mitigation measures would be analyzed through the appropriate level of NEPA analysis to determine effectiveness, and will be required or implemented as a permit condition of approval (COA). At a minimum, all projects and permitted uses implemented under this lease will comply with all applicable National Ambient Air Quality Standards and ensure Air Quality Related Values are protected in nearby Class I or Sensitive Class II areas that are afforded additional air quality protection under the Clean Air Act (CAA).

On the lands described below:

<LEGAL_DESCRIPTIONS>

Attachment E - Maps




Hart Spring
West Can
Spring
Hart
Canyon
Pacheco
Canyon
Low
Pipeline
Line
Canyon
Long
Harmony Mesa
6165
6166
6167
75
36
31
1
6
13
18
24
1782
1763
1800
1768
1830
1821
1820
Competitive Oil & Gas Lease Sale
DOI-BLM-CO-F020-0041 EA
Las Animas County
RGFO December 2020
NOTE TO MAP USER:
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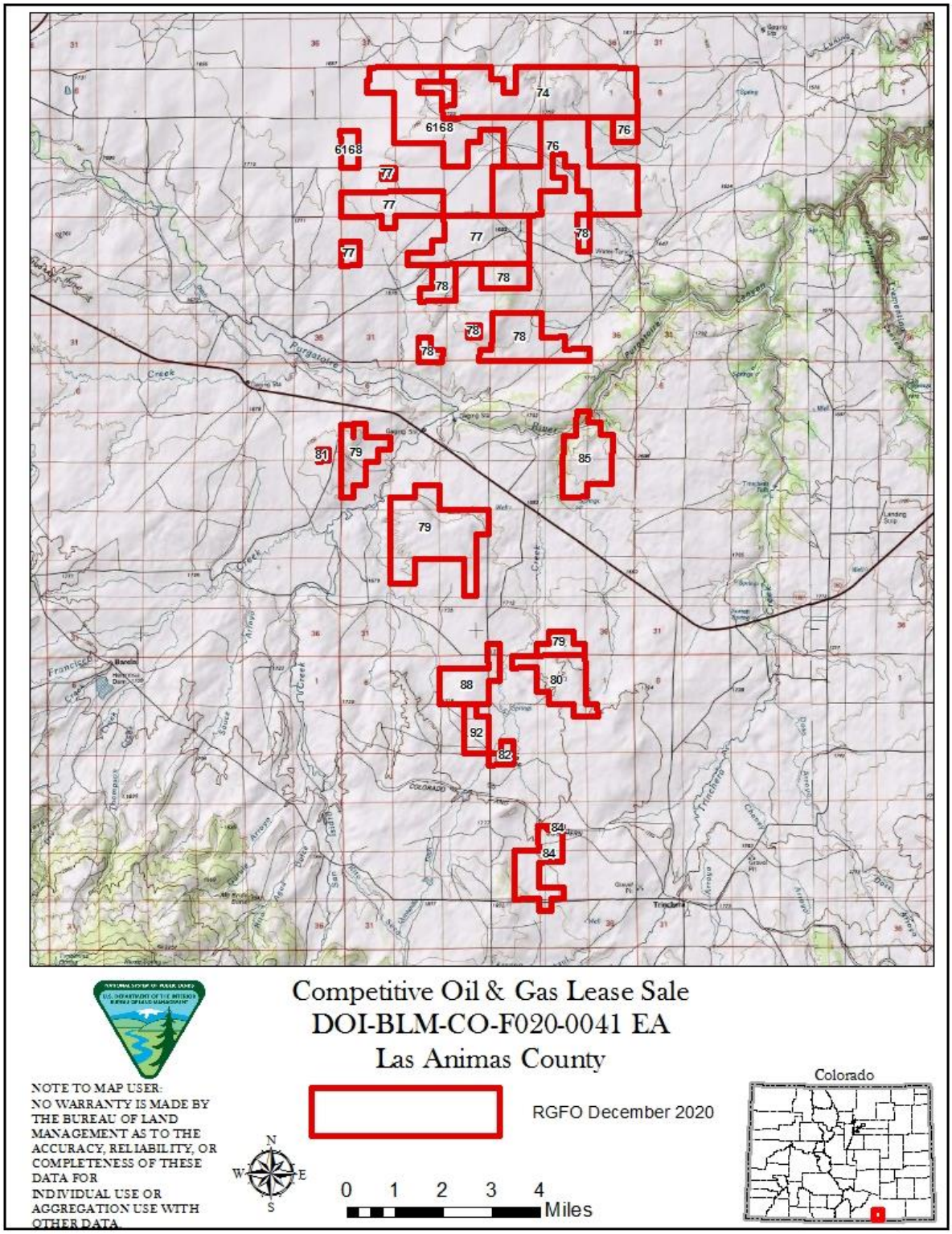
Competitive Oil & Gas Lease Sale
DOI-BLM-CO-F020-0041 EA
Las Animas County
RGFO December 2020
Colorado
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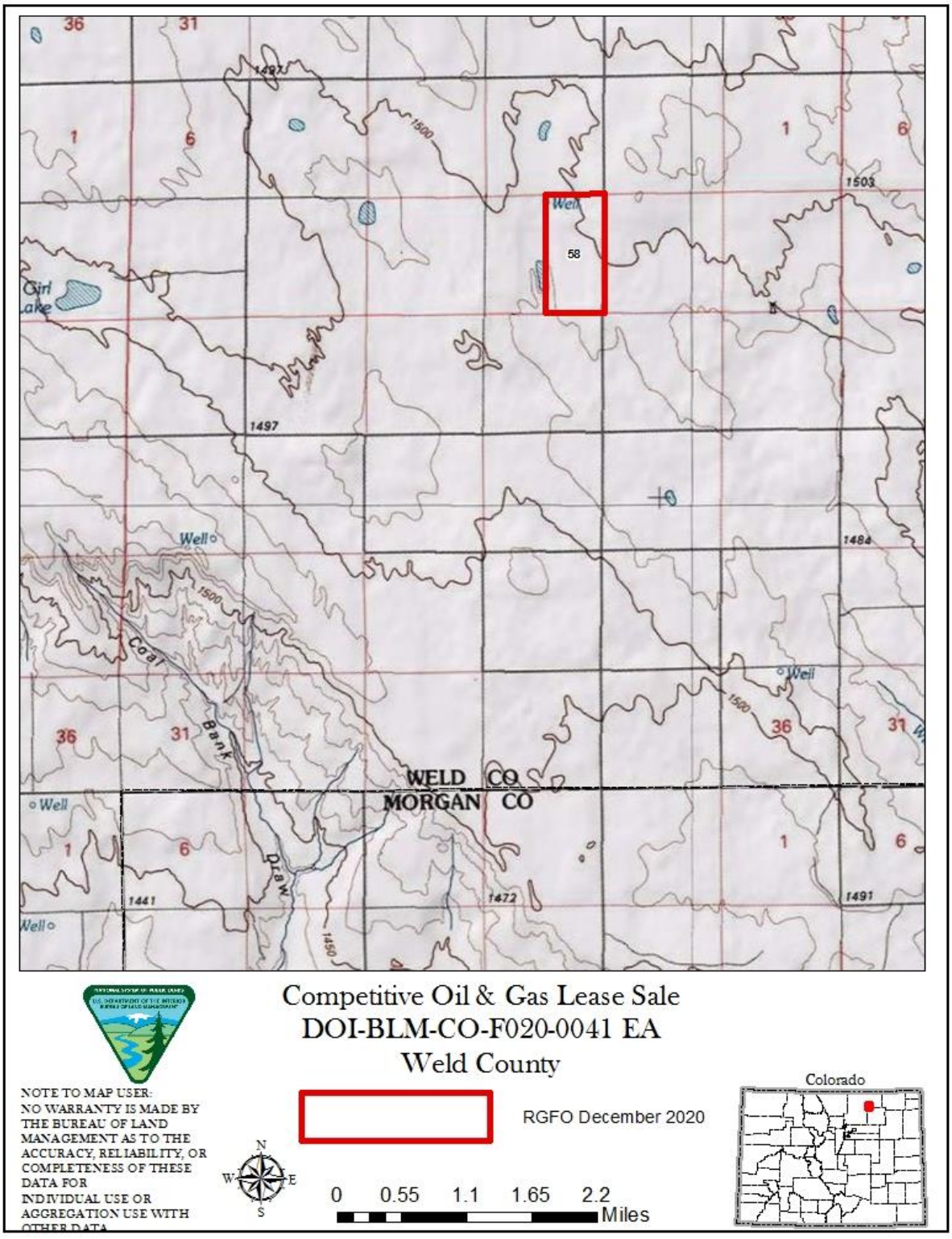
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Competitive Oil & Gas Lease Sale
DOI-BLM-CO-F020-0041 EA
Weld County
RGFO December 2020
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Attachment F - Summary of Public and Interagency Comments on EA Draft

Topics raised by public comments are summarized and addressed below.

Resource	Concern/*Commenter*	Response
NEPA	The BLM did not fully consider the direct, indirect, and cumulative effects of the lease sale. *Audubon, CDPHE*	The RGFO EA analyzed reasonably foreseeable direct and indirect impacts of leasing the proposed parcels, as well as cumulative impacts. The corresponding RMP EISs also considered the direct, indirect, and cumulative effects of leasing in the planning areas in the oil and gas management sections of the documents. Some types of broad impacts of oil and gas development can be reasonably anticipated based on the BLM resource specialists' familiarity with the general area of the lease sale, and review of existing GIS or other resource information. The BLM analyzed whether these anticipated broad impacts were consistent with those identified in the RMP EISs.
NEPA	The BLM must prepare an EIS *WildEarth Guardians (WEG),Colorado Department of Public Health &Environment (CDPHE)*	The analysis presented in the Environmental Assessment identified no potentially significant impacts that warrant an EIS.
NEPA	The BLM cannot defer site specific analysis to the Application for Permit to Drill (APD) stage *WEG*	The leasing EA aids the BLM in its decision whether to lease the parcels under consideration, based on the analysis of potential impacts that are reasonably foreseeable at the leasing stage. Much of the information about potential future development is unknown until the BLM receives a project proposal. At the time of leasing, the BLM does not know whether a parcel will be developed, and if so, where the operator will propose to place pads, wells, roads, and infrastructure. The site-

		specific details included in an APD show exactly where disturbance is proposed to occur, and this information allows for environmental impacts to be analyzed in more detail.
NEPA	The BLM Should Use Its Discretion Not to Lease the Proposed Parcels *WEG, Lish*	When a Resource Management Plan is completed the BLM exercises its discretion to make lands eligible for potential leasing. The BLM exercised this discretion in the governing RMP and determined that the lands in this sale are open to oil and gas leasing and potential development. The BLM has not identified any resource issues that require further analysis or other procedures that would warrant deferral of the proposed parcels from the lease sale.
NEPA	The BLM did not consider a reasonable range of alternatives. *WEG, Audubon*	Leasing decisions by the BLM are to lease or not to lease. In this case, the alternatives consist of the preferred alternative that includes all proposed parcels and the no action alternative. This range of alternatives is sufficient for the BLM to consider the potential impacts of leasing and make an informed decision whether to offer to lease all, none or some of the parcels.
NEPA	Proposal to lease parcels may result in impacts and prejudice in alternatives for the ECRMP *WEG*	The current RMP is in effect until a new RMP is signed. The potential impacts of leasing and future development have been sufficiently analyzed in this EA, and no new potentially significant impacts warranting analysis in an EIS have been identified.
NEPA	It is required by FLPMA and MLA to have a deferred leasing alternative *Institute for Policy Integrity (IPI)*	NEPA requires a “No Action” alternative which in essence is not offering the parcels for sale. This would have the same effect as deferring the parcels from the sale. The No Action alternative was analyzed in the EA.

NEPA	The BLM must ensure the lease sale complies with NEPA and FLPMA. *WEG*	Until a plan is revised, the BLM follows the decisions in the current land use plans. See section 2.4 in the EA. The December 2020 Lease Sale EA complies with FLPMA as stated in Sec 302. [43 U.S.C 1732] (a): "The Secretary shall manage public lands under principles of multiple use and sustained yield, in accordance with the land use plans developed by him under section 202 of this Act when they are available, except that where a tract of such public land has been dedicated to specific uses according to any other provisions of law it shall be managed in accordance with such law." The BLM has prepared the EA in accordance with NEPA, to consider new information that has become available since completion of the RMP EISs.
NEPA	Prioritizing oil and gas development is inconsistent with the multi-use mandate. *Audubon, IPI*	The BLM determines which lands are open to potential leasing in its RMPs, based on analyses that consider various resources and resource uses. The RMP decisions reflect the BLM's balancing of multiple uses. Most of the parcels that the BLM considers for leasing originate through interested parties' submittal of expressions of interest (EOI) in particular lands that are open for leasing. In some instances, the BLM internally identifies lands for leasing consideration, such as when leasing would protect the federal mineral interest from drainage by adjacent leases. The parcels in this sale are split estate which means, the BLM does not manage the surface of these lands except through its oversight of drilling operations. The BLM does not control other surface uses on private lands.
Policy/Procedure	IM 2018-0034 is invalid and impedes informed decision making. *Audubon*	The BLM Colorado has prepared a thorough EA, provided a 30-day public comment period, and appropriately considered public comments. In addition, BLM will provide a 30-day protest period for the lease sale.

Policy/Procedure	The BLM should not conduct lease sales during a national emergency because meaningful comments are difficult to submit during a pandemic. *National Wildlife Federation (NWF)/Colorado Wildlife Federation (CWF),* Audubon, Lish	This was discussed in the EA; see page 12, Section 1.4.4 Public Involvement.
Policy/Procedure	The BLM's proposal to lease during an economic crisis violates the Mineral Leasing Act. *WEG*	The lessee has ten years to initiate development of and oil and gas lease. Oil and gas markets fluctuate over a ten-year period. Developing an oil and gas lease involves many steps and can take several years. Throughout the life of an oil and gas lease rentals and royalties are paid to the federal government and economic benefits are returned to the public.
Water Quality, Surface and Ground	CDPHE comments regarding impacts to groundwater and surface water, and release of PFAS and TENORM *CDPHE, Audubon*	At the APD stage, the BLM will review site specific engineering and geology information and will require proper cementing and casing of wells to protect usable groundwater, per BLM Onshore Order #2. BMPs and state stormwater regulations will be implemented to protect surface water quality.
Fluid Minerals	The BLM should not be leasing in low potential land and doing so violates the Mineral Leasing Act. *NWF/CWF, WEG, IPI*	While BLM's analyses of resource impacts (such as air quality impacts) may consider available information about the oil and gas potential of particular lands, BLM does not base its leasing decisions on the relative oil and gas potential of particular lands. Oil and gas operators make internal business decisions as to whether to bid on leases in a particular area. Classifications of oil and gas potential may change over time as new technologies develop and new oil and gas discoveries are identified.

Fluid Minerals	BLM has a duty to determine whether operators have an intent to diligently develop the mineral leases. *WEG*	Development is still occurring on Federal lands even with the pandemic and the low commodity prices. Many expressions of interest are received anonymously; therefore, the BLM cannot predict which applicant is interested in development versus speculative investment in federal leases.
Hydrology/Minerals	BLM Fails to Take a "Hard Look" at the Impacts of Hydraulic Fracturing for All of the Parcels. *WEG, Audubon*	As stated in section 1.6, groundwater resources would be assessed at the Application for Permit to Drill (APD) Stage. Onshore Order #2 requires the protection of usable groundwater through proper drilling, cementing, and casing procedures. A research network funded by the National Science Foundation (NSF), which engaged 29 researchers at nine institutions, undertook a study of hydrocarbon and fracturing fluid migration in the Wattenberg Field, Denver Basin, CO (Fleckenstein, et al, 2015). The mission of the research is to provide a science-based framework for evaluating the trade-offs between hydrocarbon development and protection of water and air resources. The study of the Wattenberg Field found the following: 1.) There was no evidence of aquifer contamination due to stimulation through wellbores; 2.) Of the 17,948 wells in the study area, 10 exhibited signs of hydrocarbon migration to fresh water aquifers. 3.) Probability of hydrocarbon migration in vertical wells due to failure of one or more barriers was 0.06%; 4.) Migration of hydrocarbons only occurred in older vertical wells in which the casing did not extend through all usable water zones; the probability of hydrocarbon migration is directly correlated with the age of the well. 5.) There was no evidence of failure of one or more barriers in horizontal wells for shale development. 6.) There was no evidence of hydrocarbon migration in horizontal wells used for shale development. Another study, published in 2018, analyzed methane migration in the Utica Shale region of southern Ohio (Botner, et al, 2018). Wells drilled in the Utica Shale are typically completed using hydraulic fracturing techniques. Data were

		collected as a free public water testing program, which tested rural water wells. The study found no increase in CH4 concentrations in rural water wells, and no change in isotopic CH4 composition. CH4 present in groundwater of the study area was determined to be biogenic in origin, and naturally occurring. 180 groundwater samples were collected in this study: three of the samples had naturally occurring concentrations of CH4 which pose a fire or explosion hazard in enclosed spaces. This study is one of few spatial-temporal studies of CH4 concentrations and isotopic values in groundwater in an oil and gas extraction area.
Wastes, Hazardous or Solid/Fluid Minerals	BLM should impose requirements to regulate waste and limit flaring. *Audubon*	Waste prevention and flaring is regulated by the 2018 Methane and Waste prevention rule. The state of Colorado (COGCC) has regulations pertaining to flaring and waste. Proposals for flaring and waste disposal would be reviewed at the APD stage.
Air Resources / GHGs and Climate Change	There are also numerous unanswered questions regarding sage grouse, big-game habitat and effects on climate change that have not been addressed in previous documents. *Grand Valley Audubon*	The EA includes a comprehensive analysis of air quality and GHG and climate change impacts. The EA includes direct and indirect GHG emissions estimates for new oil and gas development that could occur on the lease parcels, including emissions from end-use combustion of oil and gas products, and cumulative GHG and climate change information from BLM's Annual Report. Comments related to big game are addressed in the wildlife section of these responses.
Air Resources / GHGs and Climate Change	BLM Fails to Take a Hard Look at the Direct, Indirect, and Cumulative Impacts that Will Result from Greenhouse Gas Emissions from the Proposed Action. • BLM's Comparison of the Impacts Between the	The comparison of the proposed action and no action is well supported by facts in the EA. Further, the Annual Report provides additional support via BOEM analysis that was conducted for BLM Colorado using the MarketSim model to describe potential differences for a broad scale No-Action Alternative. BLM has completed a GHG and climate change assessment in this EA. The EA includes direct and

	No Action Alternative and the Preferred Alternative is Arbitrary. • BLM Fails to Fully Assess the Direct and Indirect Greenhouse Gas Emissions That Will Result from the Lease Sale. We request that BLM disclose how it reached its direct GHG emissions rate. We also suggest that BLM include additional information in its direct and indirect greenhouse gas emissions analysis to disclose whether it considered greenhouse gases beyond CO2. • BLM Fails to Analyze Cumulative Greenhouse Gas Emissions That Will Result from the Proposed Action. • BLM Fails to Assess the Proposed Action Within the Context of Recent, Significant Climate Science. • BLM Fails to Assess the Proposed Action Within the Context of Declining Carbon Budgets. *WEG*	indirect GHG emissions estimates for new oil and gas development that could occur on the lease parcels, including emissions from end-use combustion of oil and gas products, and cumulative GHG and climate change information from BLM's Annual Report (AR). The AR provides a carbon budget assessment of potential projected emissions over two potential timelines. The declining budget is tracked annually (2019 forward) to provide additional context for consumption of BLM Colorado, Federal, and all U.S. (cumulative) oil and gas going forward. The analysis includes projections of cumulative direct and indirect GHG emissions for 30 years, developed using the methods described in the EA. The direct emissions estimation methods are also described in the EA along with the corresponding emissions data. The LCA emissions estimates described in the Annual Report include gases beyond CO2. The linked reports similarly include other emissions, as they are reported as CO2e. The AR provides a detailed summary of the latest climate science information, including data and analysis from IPCC's latest Special Report (SR15), which includes carbon budget revisions to account for problems associated with the Earth System Models used in the AR5 budget estimates. Information regarding the Global Carbon Project is also incorporated. The AR is updated annually in order to integrate new information as it becomes available.
Air Resources / GHGs and Climate Change	Cumulative effects. BLM must analyze potential climate impacts resulting from this lease sale.	The GHG and climate change assessment in this EA provides analysis of new information that has become available since the RMP EISs were completed. The EA includes direct and indirect GHG emissions estimates for new oil and gas development that could occur on the lease parcels,

	• BLM must analyze climate impacts at the leasing stage. • The underlying RMPs are inadequate to support leasing without supplemental NEPA. *Audubon*	and cumulative GHG and climate change information from BLM's Annual Report (AR). The EA incorporates our Annual Report by reference, which provides more detail on the climate related impacts of the global scope emissions, and compares potential emissions associated with the federal mineral estate (Colorado and cumulative) to total U.S. fossil fuel related emissions. The AR provides cumulative projections of federal emissions out to 2050 based on the EIA AEO Report to disclose the potential federal and U.S. share of the carbon budget based on current trends. The AR also summarizes information from a BOEM analysis that was conducted for BLM Colorado using the MarketSim model to describe potential differences for a broad scale No-Action Alternative. Finally, the AR discusses the cumulative significance of the emissions in relation to the global climate change issue. Both the AR and the EA explain that a single project or subnational contributor, such as a BLM field office, is very unlikely to measurably influence global cumulative emissions or climate change impacts. In addition to the GHG and climate change assessment, the EA included information from the CARMMS 2.0 modeling study that assesses Colorado-wide impacts of projected new Federal and non-Federal oil and gas development through year 2025. The EA provides potential future cumulative impacts to nitrogen deposition, visibility and ozone, and RGFO specific contributions to these cumulative impacts due to new oil and gas development and other regional emissions sources (CARMMS emissions inventories account for all sectors). As described in the EA (and AR), new federal oil and gas development within the RGFO through year 2025 for the CARMMS 2.0 high scenario (highest level of new oil and gas development years 2016 through 2025) would not cause significant impacts to air resources, and overall cumulative air quality related conditions are expected to improve into the

		future due to declines in other emissions causing elements.
Air Resources / GHGs and Climate Change	• BLM should prepare an EIS for this proposed lease sale, which addresses the contribution of ozone and ozone precursors to the DMNFR Ozone Nonattainment Area (if any). • The EIS should address cumulative air quality impacts of this proposed lease sale, including climate change impacts. • the EIS should discuss any inconsistencies with Colorado's efforts to: maintain PM10 federal standards; achieve visibility goals under the federal Regional Haze Rule; attain federal ozone standards; reduce GHG emissions in accordance with House Bill 1261 (50% reduction by 2030 and 90% reduction by 2050) and; prioritize public health, safety, welfare, the environment and wildlife resources during oil and gas development as provided for in Senate Bill 19-181. *CDPHE*	Leasing a single parcel within the Denver ozone NAA does not warrant an EIS because the EA has not identified any reasonably foreseeable significant impacts on air quality. BLM completes project-level impacts assessments when it receives new oil and gas development proposals and project plans from operators. BLM Colorado develops detailed and accurate emissions inventories when proposed projects are submitted and uses regional and near-field analysis tools (including AERMOD) to account for all potential impacts associated with a project. These analyses may include a NAAQS and air toxics assessments if necessary. BLM Colorado adheres to the regulations for conducting general conformity reviews for proposed projects within the Denver O3 NAA. Through the CARMMS 2.0 study, the BLM analyzed cumulative air resource impacts from projected oil and gas development within the RGFO, including potential ozone contributions. The EA provides a concise summary of the results of the study, which are discussed further in the Annual Report. As discussed in the EA and the AR, the CARMMS data shows that NAAQS and AQRV related impacts from the projected oil and gas development within the RGFO are negligible. Modeling analyses for the Regional Haze Rule assessments are currently ongoing (2020), and the BLM is working with the stakeholders to better understand what sources of federal oil and gas emissions are driving visibility impacts for the region. BLM and CDPHE have an MOU for exchanging data and information to assist CDPHE with developing future federal and non-federal oil and gas emissions inventories for Colorado State Implementation Plan (SIP) demonstrations.

		HB 19-1261 directs the Colorado Air Quality Control Commission (not BLM) to promulgate regulations to achieve the State carbon reduction goals. However, no rules have been promulgated. BLM will continue to evaluate emission trends in its future decision-making.
Air Resources / GHGs and Climate Change	BLM provides an inadequate assessment of the significance of the potential climate impacts in the EA. BLM provides projected emissions from reasonably foreseeable leasing activity, compares only state-wide federal mineral projects' emissions quantities to other greenhouse gas emissions inventories. This provides no information about the climate impacts of the proposed action itself. *Policy Integrity*	The EA presents a range of potential GHG emissions based on the limited data actually available at this time about potential future development activity. The emission are comprehensive in nature and represent the best available information available for analysis The EA incorporates the Annual Report, which provides more detail on the climate related impacts of the global scope emissions, and contrasts the federal mineral estate (BLM Colorado and all Federal) to the total U.S. fossil fuel related emissions to present a an apples to apples look at supply (federal) and demand (us total). The declining budget is tracked annually (2019 forward) to provide additional context for consumption of and all U.S. (cumulative) oil and gas going forward. The AR provides cumulative projections of the federal emissions out to 2050 based on the EIA AEO Report to disclose the potential federal and U.S. share of the carbon budget based on current trends. The AR also summarizes information from a BOEM analysis that was conducted for BLM Colorado using the MarketSim model to describe potential differences for a broad scale No-Action Alternative. Finally, the AR discusses the cumulative significance of the emissions in relation to the global climate change issue. Both the AR and the EA explain that a single project or subnational contributor, such as a BLM field office, is very unlikely to measurably influence global cumulative emissions or climate change impacts.
Terrestrial Wildlife	BLM should attach sufficient stipulations to big game habitat.	Impacts to priority big game species were considered and addressed in the EA and appropriate stipulations were attached to proposed parcels consistent with the RMPs. BLM-RGFO has worked closely with Colorado Parks and

	NWF, CWF, Theodore Roosevelt Conservation Partnership(TRCP), Audubon	Wildlife (CPW), the state's wildlife managing agency, throughout this decision process. CPW has confirmed that the stipulations, lease notices, and available mitigation measures are sufficient to protect big game habitat.
Terrestrial Wildlife	CPW recommends a Master Development Plan be completed in southern Las Animas County prior to initiating new disturbance and the consolidation of facilities with management of well pad and road densities in bighorn sheep occupied range within the leased area. *Colorado Parks & Wildlife (CPW), TRCP*	Language has been added to potential future mitigation acknowledging that a Master Development Plan may be one potential option to avoid/minimize impacts to wildlife on proposed lease parcels if development were to occur.
Terrestrial Wildlife	CPW recommends that if development were to occur within the spring and winter months near prairie dog colonies a timing limitation and should be enacted to protect nesting burrowing owls. *CPW*	BLM will prepare site-specific analysis of impacts associated with proposed development, including potential surface-disturbing activities, once an APD is received. If the analysis indicates burrowing owls may be impacted, mitigation, such as timing limitations, may be applied as a condition of approval to reduce impacts.
Socioeconomics	BLM is managing resources for the public and should be ensuring a fair return, which is not achievable during current low energy market prices. *NWF/CWF, IPI*	As discussed in the EA, markets for all commodities fluctuate over time. The Mineral Leasing Act (MLA) does not require BLM to attempt to "time" the lease of public lands for minerals development to any particular set of market conditions. In accordance with 30 U.S.C. § 226, the BLM holds competitive lease sales (auctions), and "accept[s] the highest bid from a responsible qualified bidder which is equal to or greater than the national minimum acceptable bid, without evaluation of the value of the lands proposed for lease."

Socioeconomics	Relying on competition alone is insufficient to assure fair market value when many BLM leases are sold non-competitively for the minimum bid [and] when market conditions are depressed. BLM's failure to assess option value makes it likely that the agency will violate FLPMA by failing to obtain "fair market value." *IPI*	The Federal Onshore Oil and Gas Leasing Reform Act of 1987 amended MLA by requiring that oil and gas leases first be offering competitively to the highest bidder before making them available for noncompetitive leasing. The Act allows the market to set the value of leases by making all leases available for competitive leasing. The MLA directs that BLM should accept the highest qualified bid "without evaluation of the value of the lands proposed for lease." 30 U.S.C. § 226. FLPMA requires the government to "receive fair market value of the use of the public lands and their resources unless otherwise provided for by statute." The current BLM leasing procedures under MLA and the 1987 reform Act meet this objective.
Socioeconomics	BLM should take into account the "option value" of deferring leasing, which would leave open more opportunities for management that addresses the full range of multiple uses. *Audubon*	The BLM has the option of approving the sale of all, some, or none of the leases in any given sale. The BLM therefore has the option of deferring leasing of these parcels. To the extent the comment is arguing that the BLM's failure to look at "option value" is in effect precluding alternatives under NEPA or limiting uses under the multiple use mandate in FLPMA, the parcels available for lease under the Preferred Alternative of this EA are designated as open to oil and gas leasing in the approved RMPs. BLM made those decisions after considering multiple use values. Moreover, leasing does not foreclose all other uses and resource values on the lands, and BLM considers those other values when reviewing site-specific development proposals.
Socioeconomics	BLM should account for option value, or the informational value of delay, at the lease sale stage by offering only high-potential lands with limited multiple-use conflicts, if any, in lease sales, and deferring other parcels that pose potential resource conflicts. Th[e] limited [agency] analysis overlooks the other beneficial uses that are being forgone by	The BLM develops resource management plans, which specify what areas will be open to oil and gas development and the conditions to be placed on such development. BLM considers parcels for potential leasing in accordance with the MLA, implementing regulations at 43 C.F.R. Part 3100, and agency policy. Issuance of a lease does not preclude other activities. If the lease holder submits an application for permit to drill, the BLM examines user

	leasing the land—an important consideration in assessing the fair value of the property. *IPI*	conflicts and environmental impacts during a site-specific analysis.
Social Cost of Carbon	The social cost of carbon (SCC) provides a useful, valid, and meaningful tool for assessing the climate consequences of the proposed leasing, *Audubon/WEG*	The BLM has used other approaches to examine climate consequences from GHG emissions associated with the proposed leasing. The EA quantifies estimates of total GHG emissions (tons of CO2e) for all stages of oil and gas development, production, transport and consumption for potential oil and gas development that could occur on the subject lease parcels. In addition, the EA discusses potential climate impacts qualitatively. The approach taken by the BLM recognizes that there are adverse environmental impacts associated with the development and use of fossil fuels on climate change, provides potential GHG emission estimates, places those estimates in context of emissions at other scales (U.S., Global), and discusses potential climate change impacts qualitatively, thus effectively informing the decision-maker and the public of the potential for GHG emissions and the potential implications of climate change. This approach presents the data and information in a manner that follows many of the guidelines for effective climate change communication developed by the National Academy of Sciences by making the information more readily understood and relatable to the decision-maker and the general public. The SCC protocol does not add any information about the actual impacts of a project on the biophysical environment or economic conditions in a specific geographic location. The SCC tool was developed for the express purpose of "allow[ing] agencies to incorporate the social benefits of reducing carbon dioxide (CO2) emissions into cost-benefit analyses of regulatory actions that impact cumulative global emissions" and to assist agencies in complying with Executive

		Order 12866. The Executive Order required federal agencies to assess the cost and benefits of rulemakings as part of their regulatory impact analyses. The action considered here is not a rulemaking and does not require a regulatory impact analysis.
Aquatic Wildlife	CPW recommends a stipulation to protect aquatic habitat in riparian areas on parcels in Las Animas County.	See Attachment C for Stipulation CO-28 To protect perennial water impoundments and streams, and/or riparian/wetland vegetation by moving oil and gas exploration and development beyond the riparian vegetation zone.
Recreation	Recreation needs detailed analysis. Indirect impacts from the lease sale could negatively impact community health and diminish opportunities for quality outdoor recreation experiences by increasing industrial traffic and causing sound, sight, and exhaust pollution near the recreation assets affected by this sale. Purgatoire River corridor parcels 78,79,85. *American Whitewater*	As stated in the issue section on page 12 of the EA, detailed analysis of potential impacts to unknown recreational uses of private land are not part of this analysis. The closest public access to the Purgatoire River is in Trinidad, CO; 22 miles away.